SANYO

FILE NO

SERVICE MANUAL

LCD TV

LCD-DP42410

PRODUCT CODE No.: 113026104
CHASSIS NO. :
P42410-00 SSB42TTZA1I (SET)
P42410-01 SSB42TTZA2I (SKD)
P42410-02 SSB42TTZA3I (SKD-old bezel)

REFERENCE No.:SM0945007-00

CONTENTS

1. Safety precautions 3
2. Alignment instructions and method of software upgrading.....5
3. Working principle analysis of the unit 15
4. Block diagram 16
5. IC block diagram 18
6. Wiring diagram 20
7. Troubleshooting guide 22
8. Schematic diagram 27
APPENDIX-A: Assembly list
APPENDIX-B: Exploded View
Removing or Installing the Stand

Attention: This service manual is only for service personnel to take reference with. Before servicing please read the following points carefully.

Safety precautions

1. Instructions

Be sure to switch off the power supply before replacing or welding any components or inserting/plugging in connection wire Anti static measures to be taken (throughout the entire production process!):

a) Do not touch here and there by hand at will;
b) Be sure to use anti static electric iron;
c) It's a must for the welder to wear anti static gloves.

Please refer to the detailed list before replacing components that have special safety requirements. Do not change the specs and type at will.

2. Points for attention in servicing of LCD

2.1 Screens are different from one model to another and therefore not interchangeable. Be sure to

Use the screen of the original model for replacement.

2.2 The operation voltage of LCD screen is high voltage. Be sure to take proper measures in protecting yourself and the machine when testing the system in the course of normal operation or right after the power is switched off. Please do not touch the circuit or the metal part of the module

That is in operation mode. Relevant operation is possible only one minute after the power is switched off.

2.3 Do not use any adapter that is not identical with the TV set. Otherwise it will cause fire or damage to the set.

2.4 Never operate the set or do any installation work in bad environment such as wet bathroom, laundry, kitchen, or nearby fire source, heating equipment and devices or exposure to sunlight etc. Otherwise bad effect will result.

2.5 If any foreign substance such as water, liquid, metal slices or other matters happens to fall into the module, be sure to cut the power off immediately and do not move anything on the module lest it should cause fire or electric shock due to contact with the high voltage or short circuit.

2.6 Should there be smoke, abnormal smell or sound from the module, please shut the power off at once. Likewise, if the screen is not working after the power is on or in the course of operation, the power must be cut off immediately and no more operation is allowed under the same condition.

2.7 Do not pull out or plug in the connection wire when the module is in operation or just after the power is off because in this case relatively high voltage still remains in the capacitor of the driving circuit. Please wait at least one minute before the pulling out or plugging in the connection wire.

2.8 When operating or installing LCD please don't subject the LCD components to bending, twisting or extrusion, collision lest mishap should result.

2.9 As most of the circuitry in LCD TV set is composed of CMOS integrated circuits, it's necessary to pay attention to anti statics. Before servicing LCD TV make sure to take anti static measure and ensure full grounding for all the parts that have to be grounded.

2.10 There are lots of connection wires between parts behind the LCD screen. When servicing or moving the set please take care not to touch or scratch them. Once they are damaged the screen would be unable to work and no way to get it repaired.

If the connection wires, connections or components fixed by the thermo tropic glue need to disengage when service, please soak the thermo tropic glue into the alcohol and then pull them out in case of damage.

2.11 Special care must be taken in transporting or handling it. Exquisite shock vibration may lead to breakage of screen glass or damage to driving circuit. Therefore it must be packed in a strong case before the transportation or handling.

2.12 For the storage make sure to put it in a place where the environment can be controlled so as to prevent the temperature and humidity from exceeding the limits as specified in the manual. For prolonged storage, it is necessary to house it in an anti-moisture bag and put them altogether in one place. The ambient conditions are tabulated as follows:

Temperature	Scope for operation	5 ~+ 35 °C
	Scope for storage	0 ~+ 40°C
Humidity	Scope for operation	0% ~ 90 %
	Scope for storage	0% ~ 90%

2.13 Display of a fixed picture for a long time may result in appearance of picture residue on the screen, as commonly called “ghost shadow”. The extent of the residual picture varies with the maker of LCD screen. This phenomenon doesn’t represent failure. This “ghost shadow” may remain in the picture for a period of time (several minutes). But when operating it please avoid displaying still picture in high brightness for a long time.

3. Points for attention during installation

3.1 The front panel of LCD screen is of glass. When installing it please make sure to put it in place.
3.2 For service or installation it’s necessary to use specified screw lest it should damage the screen.
3.3 Be sure to take anti dust measures. Any foreign substance that happens to fall down between the screen and the glass will affect the receiving and viewing effect
3.4 When dismantling or mounting the protective partition plate that is used for anti vibration and insulation please take care to keep it in intactness so as to avoid hidden trouble.
3.5 Be sure to protect the cabinet from damage or scratch during service, dismantling or mounting.

2. Alignment instructions

2.1. Test equipment

VG-848 (Video, YPbPr and VGA signal generator)
VG-849 (Video, YPbPr, VGA and HDMI signal generator)
FLUKE 54200(TV signal generator)
CA210 (white balancer)

2.2. Power test

Connect main board, power board and IR board according the wiring diagram, connect the power and press power key(Remote controller or Keypad) button to turn on the TV.

a) Test the pin voltage of P802/power board , the data is shown in table1:

Table1 voltage data of P802

For42”									
P802	Pin1,2	Pin3,4	Pin5,6,7	Pin8,9	Pin10,11,12	Pin13	Pin14	Pin15	Pin16
Voltage	GND	22.8-25.2V	GND	11.4-12.6V	4.75-5.25V	On:2V-5.5V Off: 0-0.5V	<0.6V	2.5-5V PWM	2-5V

b) Test the pin voltage of P803/power board, the data is shown in table2:

Table2 voltage data of P803

For42”						
P803	Pin1,2,3,4,5	Pin6,7,8,9,10	Pin11	Pin12	Pin13	Pin14
Voltage	22.8-25.2V	GND	NC	2V-5V	2.5-5V PWM	NC

2.3. Alignment flow-chart

The alignment flow-chart is shown as fig-1

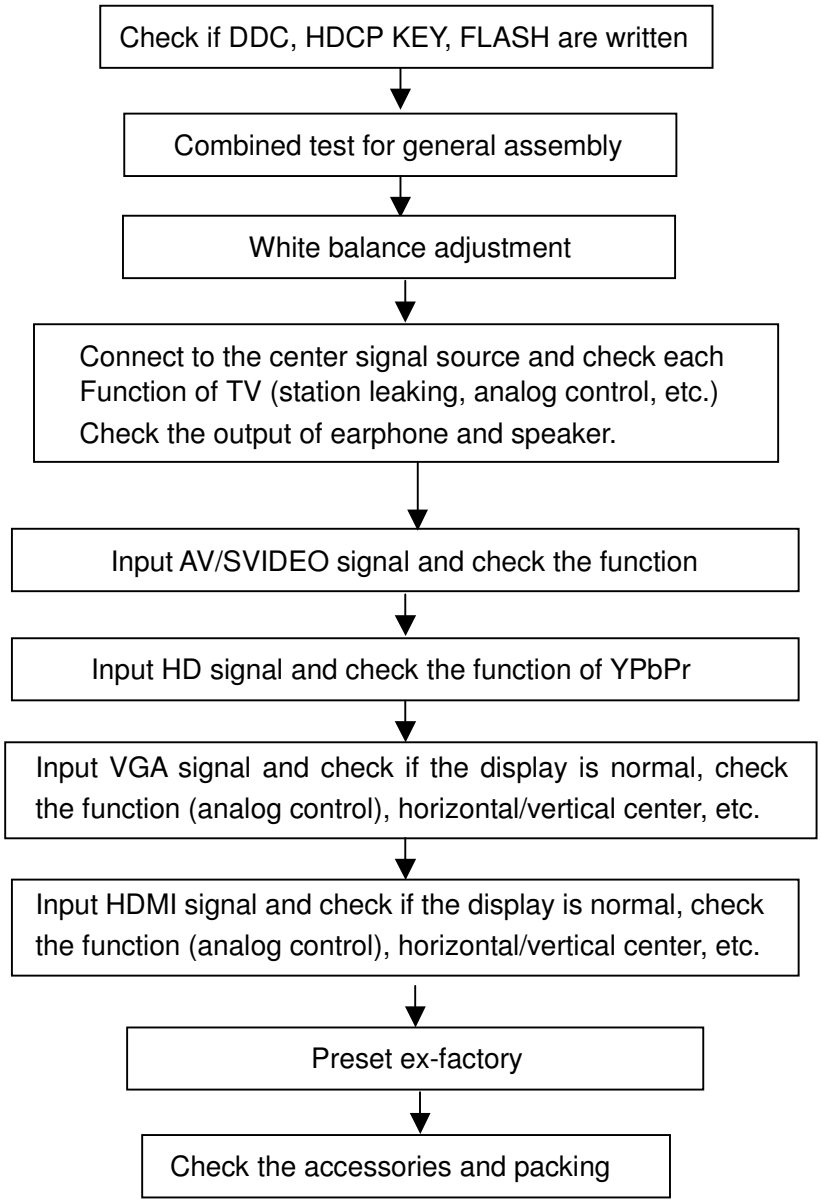


Fig-1 adjustment flow-chart

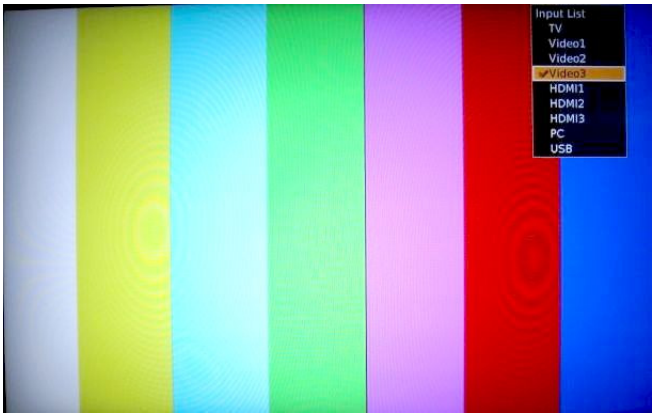
2.4. Adjustment instruction

At any input source then press the remote controller buttons “<”, “EXIT” and “>” to enter factory mode.

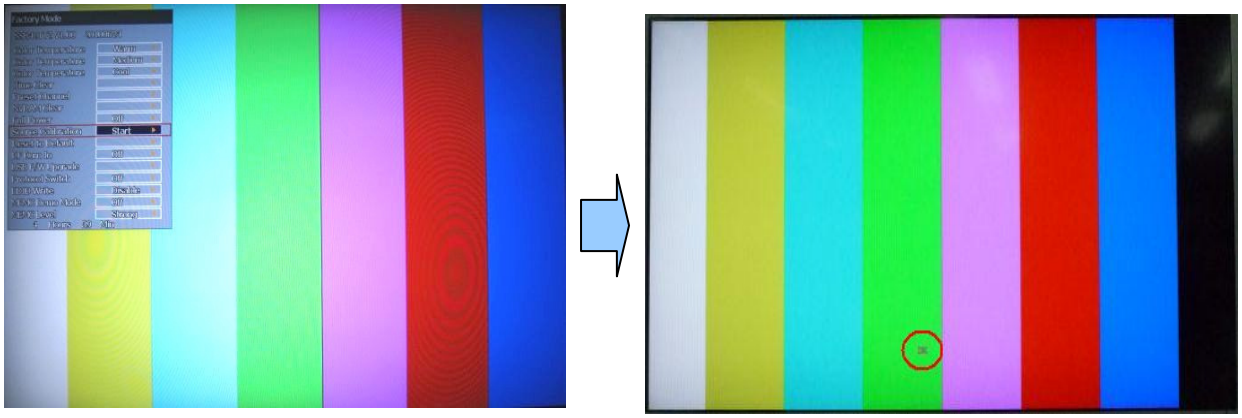
During Factory menu, if “MENU” or “EXIT” key is pushed, system will exit factory mode.

2.4-1. Source Calibration

4-1.1. Set the TV input source to YPbPr; ASTRO-859 signal setting to PG2 program number 933(1080i). (PG2 mode Timing 933 and Pattern 924 100% Color Bar.)



4-1.2. Entering into factory Mode: Press up or down key of remote control to select “Auto Calibration”, Press 「OK」 key to start.



-> Source calibration performed automatically when finished that will show OK.

4-1.3. Change input source to PC.
Change Astro-859 Timing to No.953 (640x480@60Hz) and pattern on 953(8step V-grayscale).
Repeat step 4-1.2 to do source calibration,

2.4-2. Color Temperature Adjustment & Check

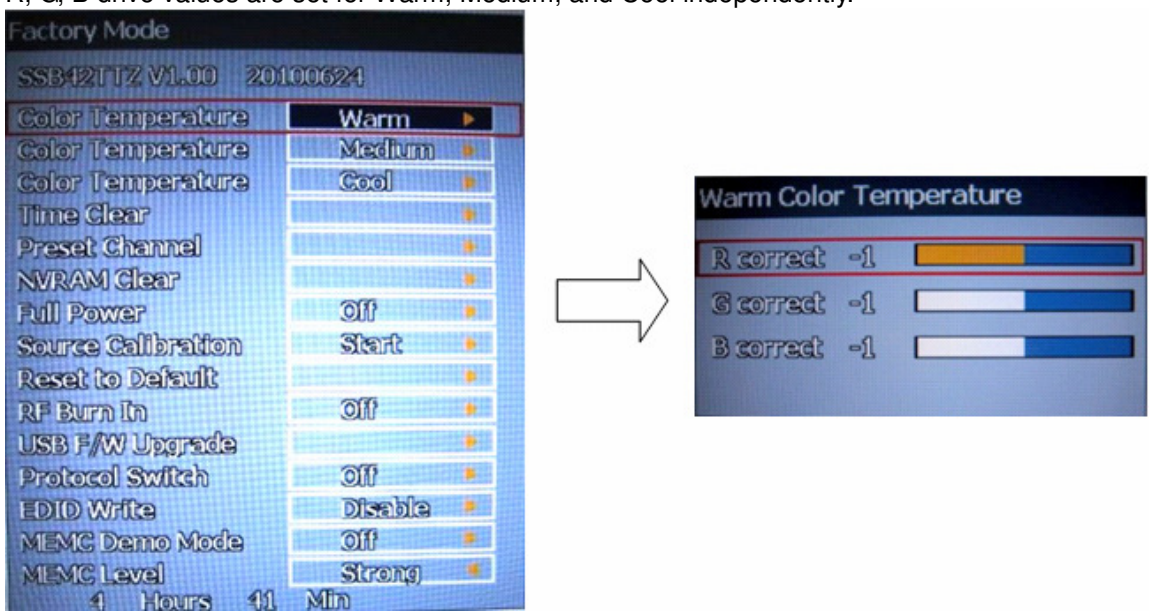
4-2.1. Set input source.

Set the signal generator Astro-859 timing to PG2-924 on Video & YPbPr, PG2-860 on HDMI, and PG2-963 on PC. Pattern sets 956 on all of the source.

Color temperature			
source	仪器	Timing	Pattern
Video	Chroma,CA210 , Astro VG-859 測控調整程式	PG2 924 NTSC	PG2 956 Windows white 80% (Astro output Level set to 204)
YPbPr	Chroma,CA210 , Astro VG-859 測控調整程式	PG2 924 NTSC	PG2 956 Windows white 80% (Astro output Level set to 204)
HDMI	Chroma,CA210 , Astro VG-859 測控調整程式	PG2 860 1440x480i	PG2 956 Windows white 80% (Astro output Level set to 204)
PC	Chroma,CA210 , Astro VG-859 測控調整程式	PG2 963 1024x768@60hz	PG2 956 Windows white 80% (Astro output Level set to 204)

Then press Astro-859 “FORMAT” key and ⏬ key, then adjust RGB value to R:204, G:204, B:204

4-2.2. In factory mode OSD menu, select “Color Temperature” item, press “OK” key to enter the item.
R, G, B drive values are set for Warm, Medium, and Cool independently.



4-2.3. Set Color Temperature for “Warm”, “Medium” and “Cool” with following spec table.

Color temperature(for 42")			
Color Temp.	Cool	Medium	Warm
x	0.267	0.281	0.301
y	0.271	0.288	0.310
Tolerance	± 0.01	± 0.01	± 0.01

If the x and y value are larger than specification,
Decrease Red drive from default value.
Increase Blue drive from default value.

If the x or y or both x and y value is/are smaller than specification.
Decrease Blue drive from default value

According to a x and y value, please following adjustment of 1 or 2.

1 If x value is higher than spec
Decrease Red drive from default value.

2 If y value is higher than spec,
Increase Blue drive from default value

4-2.4 Exit Factory Mode:
After finishing adjusting color temperature, press [MENU] or [EXIT] to exit factory mode.

2.5. Items of Factory menu

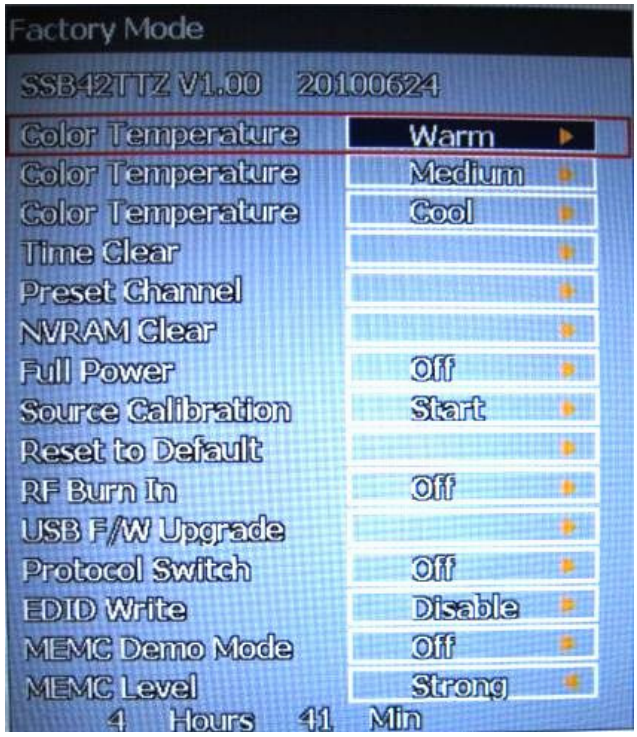
Vendor may customize design and add adjustment items Factory menu as far as all required items are included.

Press up and down key can move high light item from Color Temperature Warn -> Color Temperature Medium -> Color Temperature Cool ->Preset Channel-> Source Calibration -> Reset to Default.

The NVRAM Clear and Reset to Default items will have a check dialog “YES” and “NO” to do or not.

Push “Enter” key can select high light item function. (Press left and right can adjust value)

Display model name, firmware version and released date on top.



5-1) Color Temperature for Warm

Press up or down key can select high light item function.

Press enter key to enter the item.

Following data for color temp shall be edited manually.

-R, G, B data for each preset.

-Press “Up” or “Down” key to select “R”, “G”, “B” item

-Press “Left” or “Right” key to set the “R”, “G”, “B” value.

-Press “MENU” or “EXIT” item to exit to factory mode

5-2) Color Temperature for Medium

Press up or down key can select high light item function.

Press enter key to enter the item.

Following data for color temp shall be edited manually.

-R, G, B data for each preset.

-Press “Up” or “Down” key to select “R”, “G”, “B” item

-Press “Left” or “Right” key to set the “R”, “G”, “B” value.

-Press “MENU” or “EXIT” item to exit to factory mode

5-3) Color Temperature for Cool

Press up or down key can select high light item function.

Press enter key to enter the item.

Following data for color temp shall be edited manually.

-R, G, B data for each preset.

-Press “Up” or “Down” key to select “R”, “G”, “B” item

-Press “Left” or “Right” key to set the “R”, “G”, “B” value.

-Press “MENU” or “EXIT” item to exit to factory mode

5-4) Time Clear

Press up or down key can select high light item function.

Press “Left” & “Right” key to select the item.

The timer on bottom is to record power on time for panel life.

It was set one time on production only.

5-5) Preset Channel

This is for factory to do some tests.

5-6) NVRAM Clear

Initialize program’s default values to NVRAM for following adjustment items accuracy.

In factory mode it is the first and important step to make sure all values are default value and correct.

- Reset settings: Channel table, Mode table (H/V Position, Clock, Phase), Source dependent setting (Contrast, Brightness etc.), Common setting (Volume, Language etc.), Parental Control (Rating, Password etc), Closed Caption.

To avoid a mistake initial process after factory setting is done. This item will have a check dialog to do the initial or not.

NOTICE:

After this item is processed, the DUT needs to be powered off then AC powered off.

5-7) Full Power

This is for power consumption testing.

To measure the maximum power consumption of TV set, we adjust the value of following items to maximum.

- Video: Contrast maximum value, Brightness maximum value, Backlight maximum value.
- Audio: Volume maximum value.

Press right key to turn on Full Power and OSD stay display until press enter key to recover from Full Power.

5-8) Source Calibration

Auto Calibration (gain/offset) must be adjusted color by firmware automatic adjustment in PC, and Video3(Component) input source.

This item will have a result dialog “OK” or “NG”.

5-9) Reset to Default

This function is same as “NVRAM Clear”, but it will power off automatically after processing this function.

5-10) RF Burn In

Use “snow” pattern for burn in. Selected items are “On” and “Off”.

While turn on burn in mode, firmware will automatically turn off “Auto power off” function.

If there is no power supply suddenly, firmware will re-enter burn in mode automatically

when power supply is back.

Pressed the “Power” key, firmware will automatically turn off burn in mode.

- Burn in mode: Source is “TV”, Input Configuration is “Antenna” and channel is NTSC channel 2.

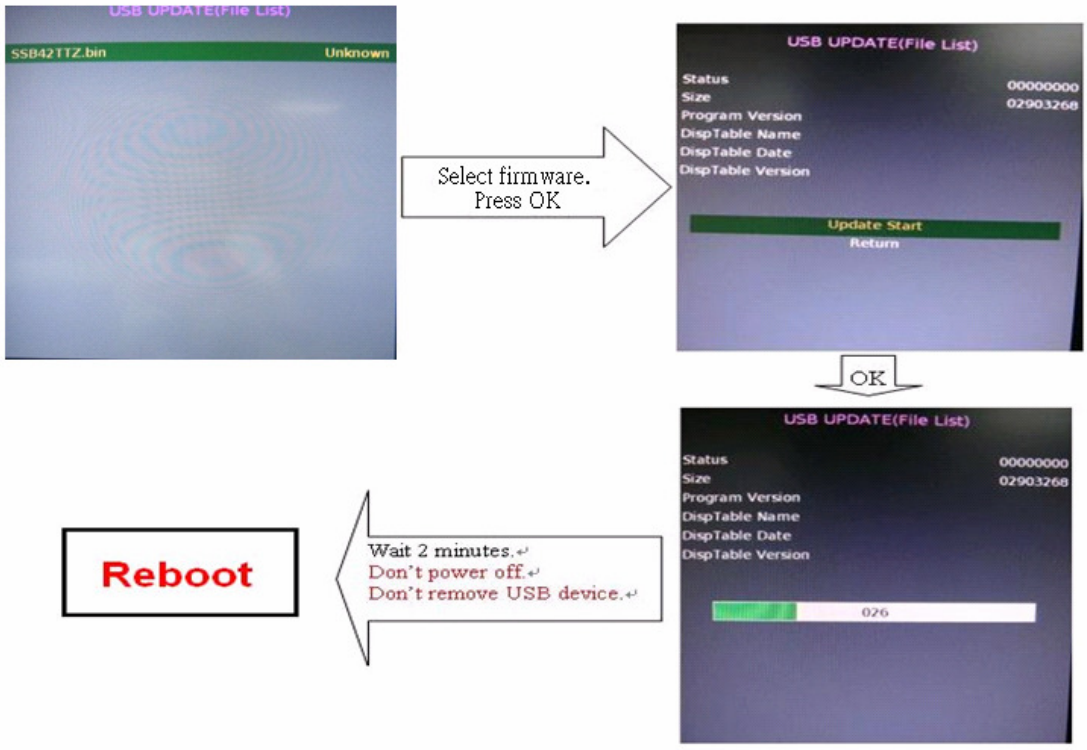
5-11) USB F/W Upgrade

The function is using USB device to upgrade firmware via USB port.

Copy the firmware file to USB device root path.

Execute this function to update firmware, the following OSD will display.

Note: After finishing updated, the system will reboot automatically



5-12) Protocol Switch

This is for debugging only. It is no use for service.

5-13) EDID Write

This is for writing EDID on the VGA source.

5-14) MEMC Demo Mode

To separate screen into two parts that left side is 60Hz and right side is 120Hz for display.

5-15) MEMC Level

Changing MEMC level to Weak, Medium or Strong.

2.6. Performance check

6-1 TV function

Connect RF to the center signal source, enter Channel menu → Channel Scan, check if there are channels be skipped, check if the picture and speaker are normal.

6-2 AV/S-Video terminals

Input AV/S-Video signal, check if the picture and sound are normal.

6-3 YPbPr/YCbCr terminal

Input YPbPr signal (VG-859 signal generator), separately input the YUV signals listed in table4 and check if the display and sound are normal at any situation (power on, channel switch and format convert, etc.)

Table4 YPbPr signal format

No	Signal mode			Horizontal frequency (KHz)	Dot clock frequency (MHz)	Remarks
	Signal name	Resolution	Vertical frequency(Hz)			
1	480i	720x480	59.94	15.73	27	
2	480P	720x480	59.94	31.47	27	
3	720P/60	1280x720	60	45	74.25	
4	1080i/60	1920x1080	60	33.75	74.25	

6-4 PC(VGA) terminal

Input PC(VGA) signal (VG-859 signal generator), separately input the signals listed in table5 and check the display and sound. If the image is deflection of the Horizontal and Vertical, select Menu->PC->Auto Adjust to perform auto-correct.

Table5 PC signal format

No	Signal mode			Horizontal frequency (KHz)	Dot clock frequency (MHz)	Remarks
	Signal name	Resolution	Vertical frequency(Hz)			
1	VGA	640 x 480	59.941	31.469	25.175	
2	SVGA	800 x 600	60.317	37.879	40	
3	XGA	1024 x 768	60.004	48.363	65	
4	W-XGA	1280 x 768	59.87	47.776	79.5	
5		1360 x 768	60.015	47.712	85.5	
6	SXGA	1280 x 1024	60.02	63.981	108	

6-5 HDMI terminal

Input HDMI signal (VG-859 signal generator), separately input the signals listed in table6 and check the display and sound (32KHz, 44.1KHz, 48KHz) at any situation (power on, channel switch and format convert, etc.)

Table6 HDMI signal format

No	Signal mode			Horizontal frequency	Dot clock frequency	Remarks
	Signal name	Resolution	Vertical frequency(Hz)	(KHz)	(MHz)	
1	VGA	640 x 480	59.94	31.469	25.175	
2	SVGA	800 x 600	60.317	37.879	40	
3	XGA	1024 x 768	60.004	48.363	65	
4	W-XGA	1280 x 768	59.87	47.776	79.5	
5		1360 x 768	60.015	47.712	85.5	
6	SXGA	1280 x 1024	60.02	63.981	108	
7	480i	720x480	59.94	15.734	27	
8	480P	720x480	59.94	31.5	27.03	
9	720P/60	1280x720	60	45	74.25	
10	1080i/60	1920x1080	60	33.75	74.25	
11	1080p/60	1920x1080	60	67.5	148.5	
12	1080p/24	1920x1080	24	27	74.25	

6-6 other functions check

a) Check the turn on/turn off timer, sleep timer, picture/sound mode, OSD, stereo and analog TV Close Caption, V-Chip, etc.

3. Working principle analysis of the unit

1. NTSC/ATSC signal flow:
Antenna reception NTSC/ATSC signal will be send to tuner U32, then Tuner will be demodulating and output differential IF+ IF- signal .
These differential IF+ IF- signal will send to the master control IC U1 to video/MPEGII decode, de-interlace and scaler, then output LVDS level drive for panel display.
The differential signals will be fed into U1 to demodulate audio signals , after demodulating, pre-amplifying, bass adjusting and volume control, the sound signal will be transform into digital I2S signal by scaler IC and sent to digital amplifier U5 amplifying, then output to speaker.

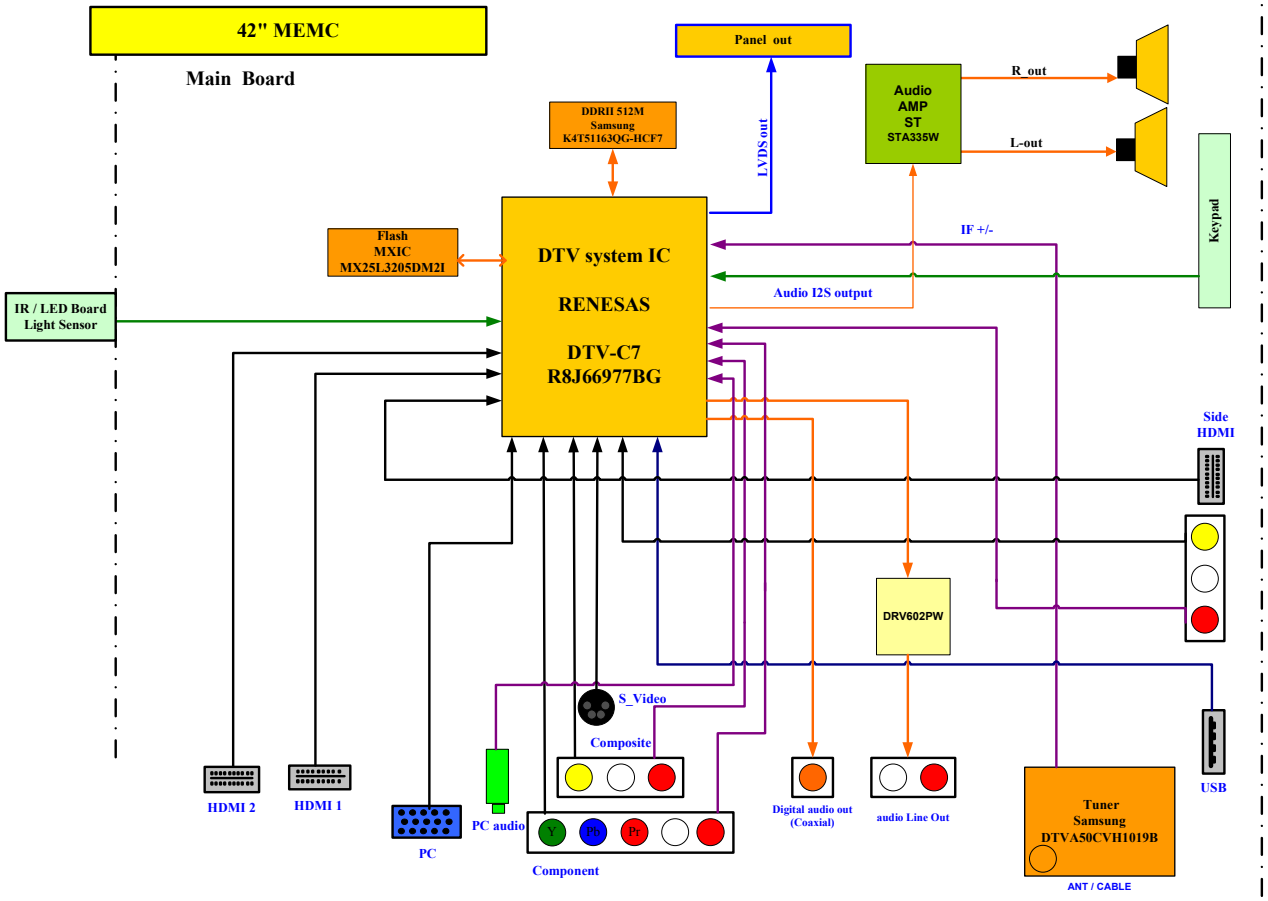
2. AV/S-VIDEO signal flow
S-VIDEO & Video path AV signal switch by menu “Inpput list” via terminal socket, the signal and the Video2 path AV signal will be fed to U1 to perform video decode, de-interlace and scaler, then output LVDS drive level for panel display.
Audio signal from AV terminal via matched resistance is fed to U1 to bass adjust and volume control, the sound signal will be transfered into digital I2S signal by scaler IC and sent to digital amplifier U5 amplifying, output to speaker.

3. PC/YPrPb signal flow
PC and the Video2 path YPbPr signal are via terminal sent to U1 A/D conversion, output R/G/B of 24 bit to back end module to digital decode, image scale, then send to LVDS level drive for panel display.
Sound signal of PC/YPrPb terminal via matched resistance and sent to U1 to bass adjust and volume control, the sound signal will be transform into digital I2S signal by scaler IC and sent to digital amplifier U5 amplifying, then output to speaker.

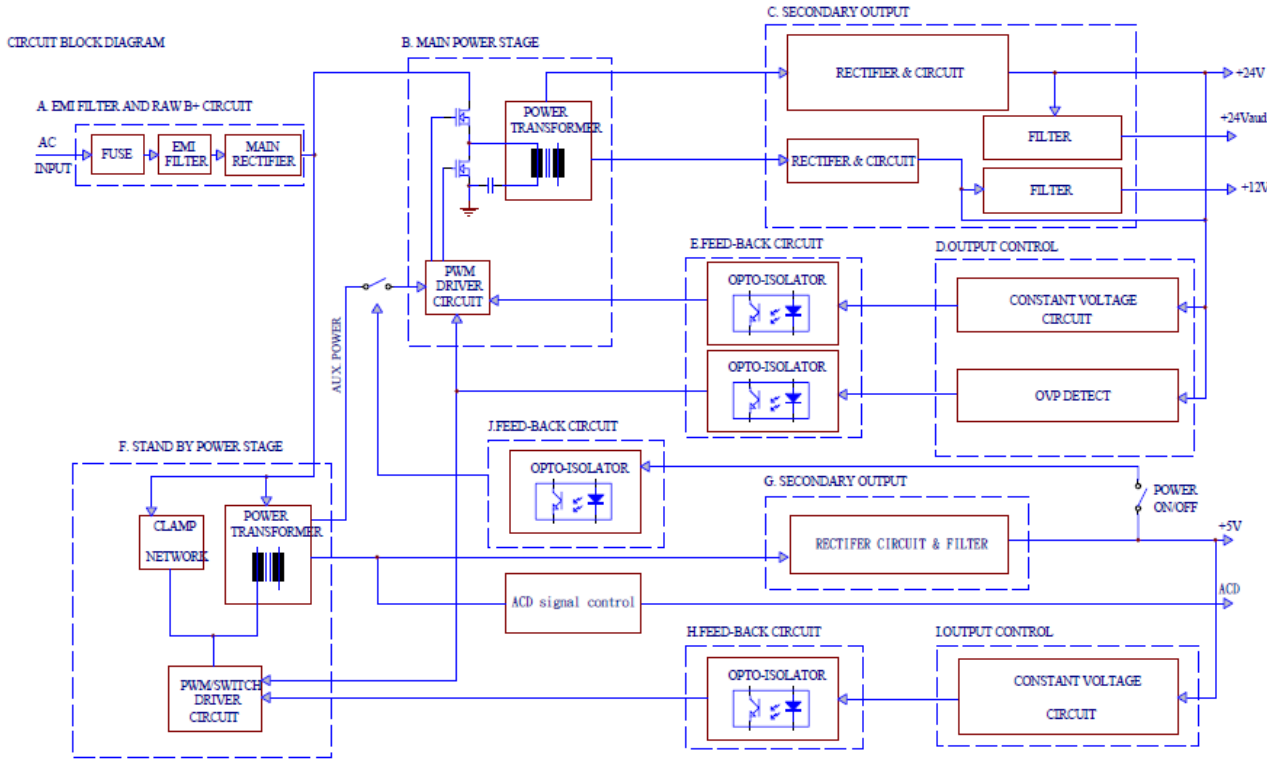
4. HDMI signal flow
HDMI video signal via terminal sent to U1 to digital decode, image scale, then output LVDS drive level for panel display. HDMI audio signal via decoder built-in terminal sent to U1 is fed to back end to bass adjust and volume control, the sound signal will be transform into digital I2S signal by scaler IC and sent to digital amplifier U5 amplifying, then output to speaker.

5. MEDIA signal flow
The JPEG file via USB terminal send to U1 to MPEG decode , image scale , then output LVDS drive level for panel display .

4. Block diagram-SANYO 42” ATSC model System Diagram



Block diagram-POWER-42”



5.IC block diagram

5-1. Renesas R8J66975-RFJZ , R8J66977BG-RFJZ

Model - SubModel	Surround	Maximum panel size	Number of HDMI ports
R8J66975BG-RFJZ	Simple surround	WSXGA+ (1680 x 1050)	3
R8J66977BG-RFJZ	Simple surround	FullHD (1920 x 1080)	3

Features

Main CPU
- 32bit RISC Super-H architecture SH3 CPU core

Demodulator
- ATSC A/53 compliant 8VSB receiver /w QAM.
- IF AGC control interface x1ch

System decoder (Stream demultiplexer)
- Video and audio ES stream filtering x1
- Section filtering: max. 32 PIDs

MPEG video decoder
- Single ISO-13818-2 MP@ML or MP@HL support
- Supports decoding of all ATSC-compliant formats

JPEG decoder
- Decode Base-line JPEG file

2D Graphics
- CEA-608/CEA-708-B closed caption support

Display processor, Video input/output
- Full 10bit processing
- MPEG Noise Filter (De-blocking/De-ringing)
- Over Drive (Panel resolution : up to WXGA)
- Inputs : CVBS x3, Y/C x2, YPbPr x2, RGB x1, HDMI x3
- Outputs : 10-bit dual LVDS

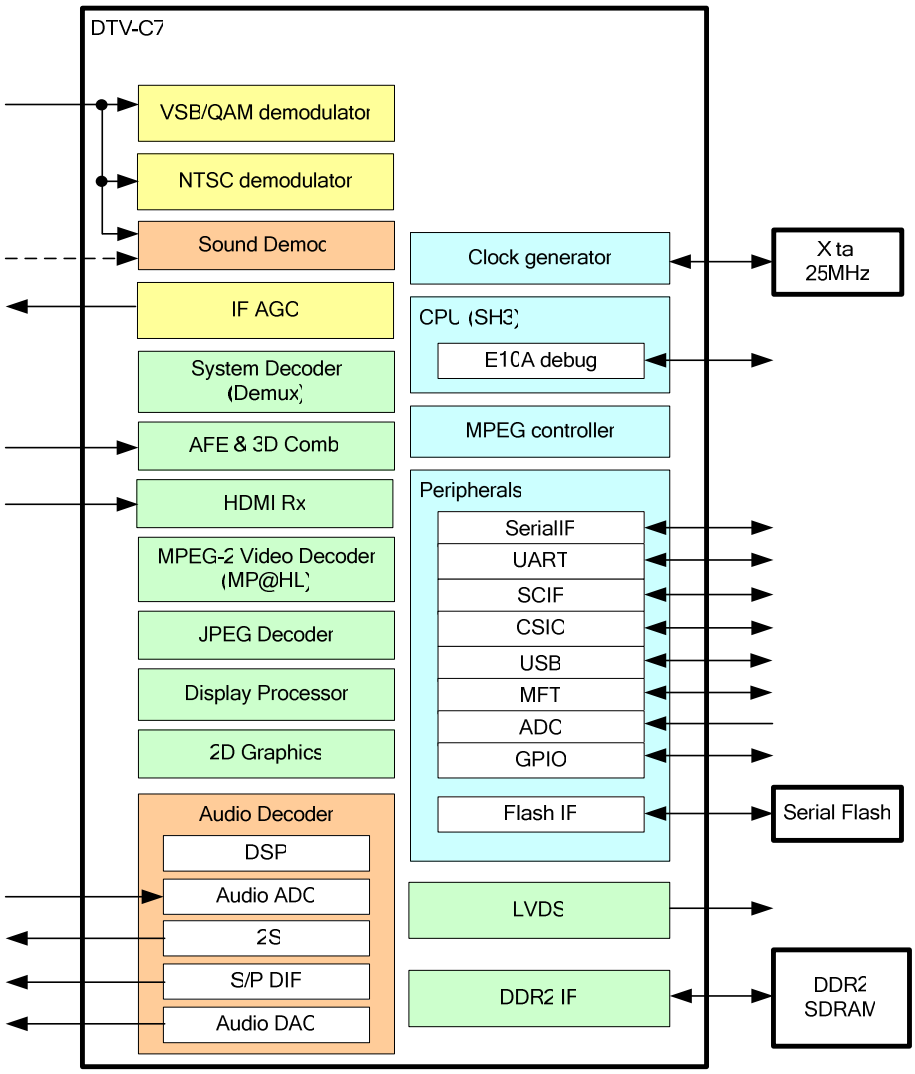
Audio decoder, Audio input/output
- ATSC A/52 Clear QAM compliant audio decoding support
- Sound Demodulator
- Inputs : SIF x1, Stereo x6
- Outputs : PCM (I2S) x2, S/PDIF x1, Stereo x1

Peripheral interfaces
- UART x1, Legacy serial interface x2, USB High Speed x1
- General purpose I/Os

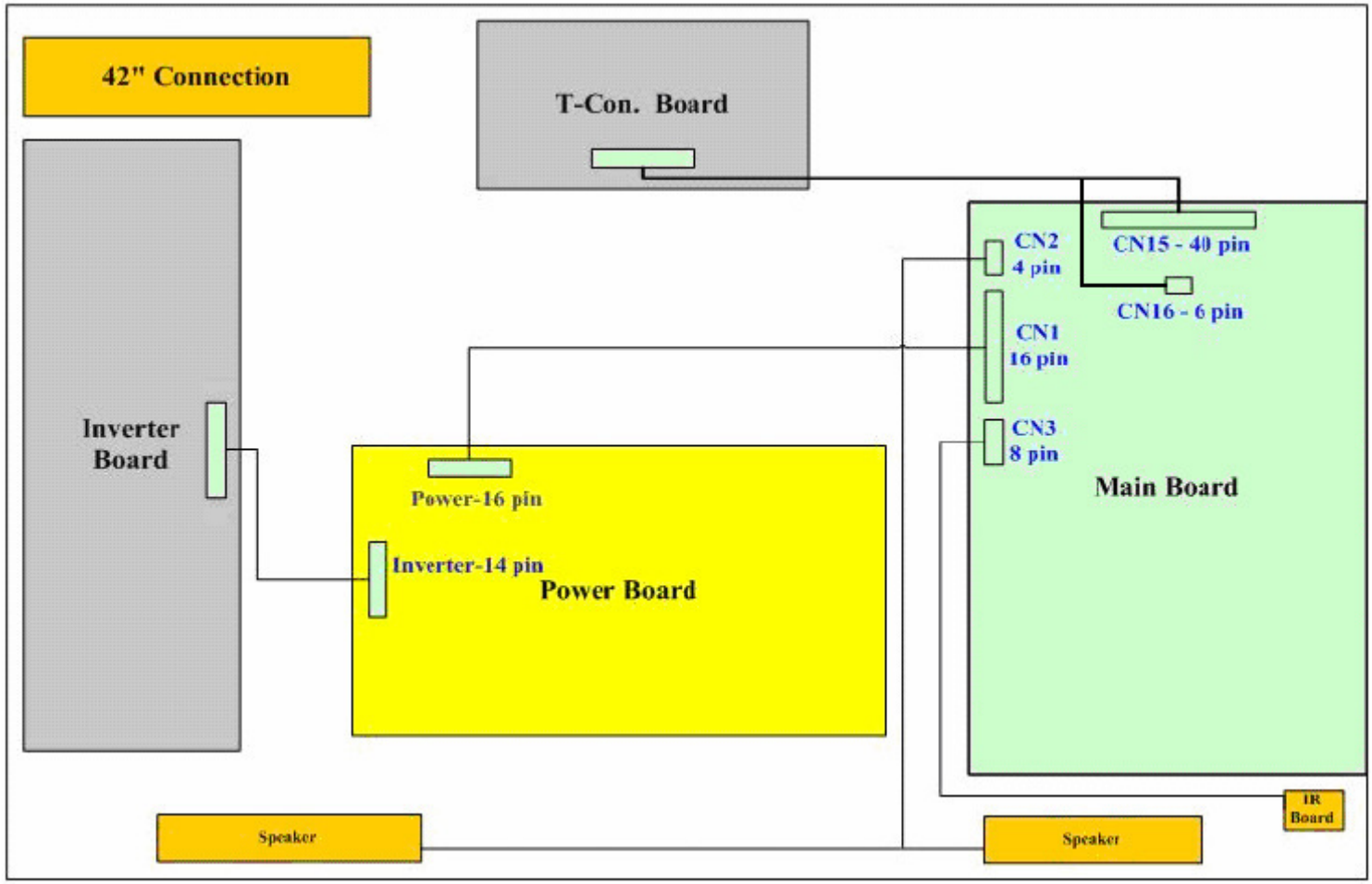
Memory interfaces
- Serial Flash
- 16b width DDR2 800Mbps(5-5-5) SDRAM x 1

Power, clock and package
- 1.26(±0.06)V, 1.82(±0.08)V, 3.3(±0.15)V
- 25MHz X'tal
- 376pin PBGA

5-2. Block diagram



42” Block


42" Connection
T-Con. Board
Inverter Board
CN2
4 pin
CN15 - 40 pin
CN16 - 6 pin
CN1
16 pin
CN3
8 pin
Main Board
Power-16 pin
Inverter-14 pin
Power Board
IR Board
Speaker
Speaker

Wiring Connection

VTV-L42601

CN1	
1	GND
2	GND
3	24V
4	24V
5	GND
6	GND
7	GND
8	12V
9	12V
10	5V
11	5V
12	5V
13	Power ON
14	AC OFF Detect
15	BACKLIGHT_ADJ
16	BACKLIGHT_EN

VTV-L42601

CN3	
1	LED Mute
2	LED Green
3	LED Red
4	GND
5	IR SENS
6	3.3V
7	Light Sensor
8	5V

VTV-L42601

CN15			
1	VDD	21	GND
2	VDD	22	GND
3	VDD	23	Panel SEL
4	VDD	24	GND
5	LV0OUT4M	25	LV1OUT4M
6	LV0OUT4P	26	LV1OUT4P
7	LV0OUT3M	27	LV1CKOM
8	LV0OUT3P	28	LV1CKOP
9	LV0OUT2M	29	LV1OUT3M
10	LV0OUT2P	30	LV1OUT3P
11	GND	31	LV1OUT2M
12	GND	32	LV1OUT2P
13	LV0CKOM	33	LV1OUT1M
14	LV0CKOP	34	LV1OUT1P
15	GND	35	LV1OUT0M
16	GND	36	LV1OUT0P
17	LV0OUT1M	37	GND
18	LV0OUT1P	38	DCR EN
19	LV0OUT0M	39	BACKLIGHT_ADJ
20	LV0OUT0P	40	DCR ADJ

VTV-L42601

CN2	
1	SPK_OUTR+
2	SPK_OUTR-
3	SPK_OUTL-
4	SPK_OUTL+

CN16	
1	MEMC SEL 0
2	SIDA1
3	MEMC SEL 1
4	SICL1
5	FR Select
6	GND

Power/B

P802	
1	GND
2	GND
3	24V
4	24V
5	GND
6	GND
7	GND
8	12V
9	12V
10	5V
11	5V
12	5V
13	Power ON
14	ACD
15	BL_ADJ
16	BL_EN

P803	
1	24V
2	24V
3	24V
4	24V
5	24V
6	GND
7	GND
8	GND
9	GND
10	GND
11	NC
12	BL_EN
13	BL_ADJ
14	NC

7. Trouble Shooting

7-1. Fault clearance

Before calling your dealer or service center for assistance, check the matters below once again.

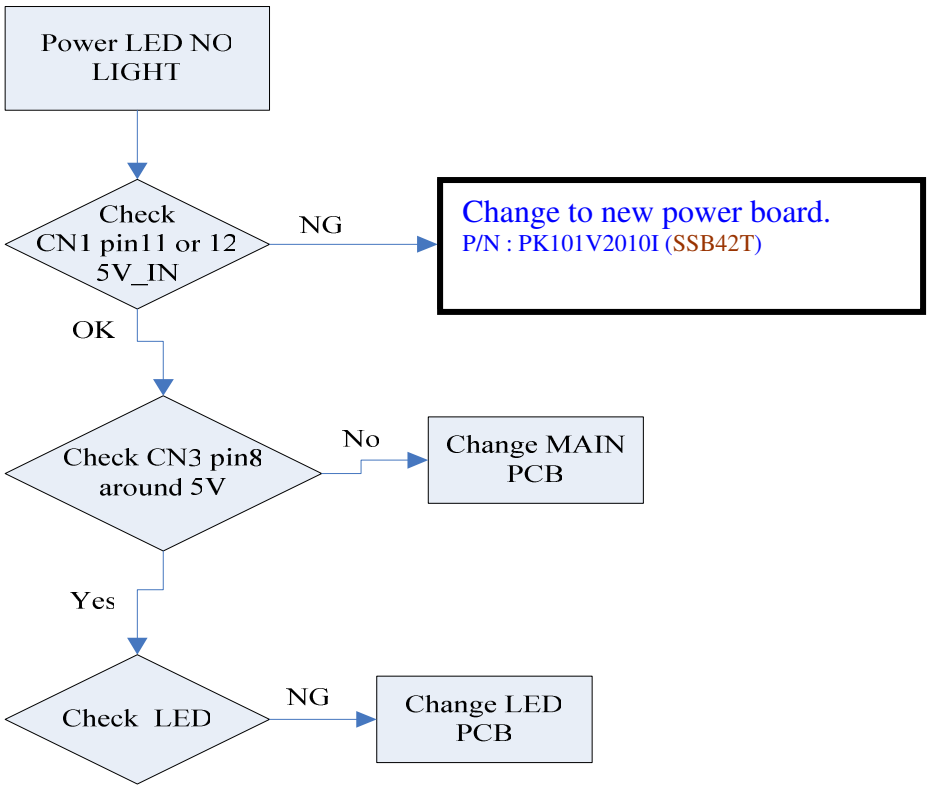
1. Make sure you have connected LCD TV to your equipment as described in the section "CONNECTING LCD TV".
2. Check cable connection. Verify that all external equipment and power cords are properly connected.
3. Verify that all power is switched on.
4. If LCD TV still does not produce an image, re-start the external equipment.
5. If the image still does not appear, unplug LCD TV from the external equipment and check the external equipment. The problem may be with your graphics controller rather than with LCD TV. (When you reconnect LCD TV, remember to turn the external equipment and TV off before you power up LCD TV. Power the equipment back on in order of LCD TV and external equipment.)
6. If the problem still exists, check the following chart.

Problem	Try these Solutions
NO POWER	• Plug this LCD TV into the AC outlet. • Press POWER key on side control or on Remote Control to open this LCD TV. • Check POWER Indicator. If this indicator flashes, this TV has getting trouble.
Remote Control does not work	• Check the batteries. • Make sure nothing is between the Remote Receiver and the Remote Control. • Make sure you are not too far from LCD TV when using Remote Control. • Maximum operating range is 16.4'(5m). • Is direct sunlight or strong artificial light shining on LCD TV 's Infrared Remote Receiver? Eliminate the light by closing curtains, pointing the light in a different direction, etc.
No image	• Check the connection between the external equipment and LCD TV. • When turning LCD TV on, it takes a few seconds to display the image. • Check the system that you select is corresponding with the external equipment or the video equipment. • Make sure the temperature is not out of the Operating Temperature (0°C ~ 40°C). • Turn off power, then turn on again, re-start LCD TV.
No sound	• Check Audio cable connection from Audio input source. • Adjust the Sound System. • Press VOLUME (+) button. • Press MUTE button.
There are tiny black points and/or bright point on the TV	• Dark or bright points of light (red, green, or blue) may appear on the screen. This is a characteristic of the LCD panels, not a malfunction of the LCD TV. • LCD panel is being produced with very high accuracy technology. There is 99.99% or more dot pixel, but there is also 0.01 % or less of dot pixel lack or dot pixel that is constantly lighted. This is not defect. • Regarding LCD panel characteristic, it may occur picture remain (look like a mirror) when the screen is changed if it displays same screen for a long time. Changing the picture or turn-off the power supply may recover. • Stripe pattern (more, interference stripes) may show up on the screen depend on the reflected picture.
Abnormal color of image	• Adjust the value of color. • Select different color system.

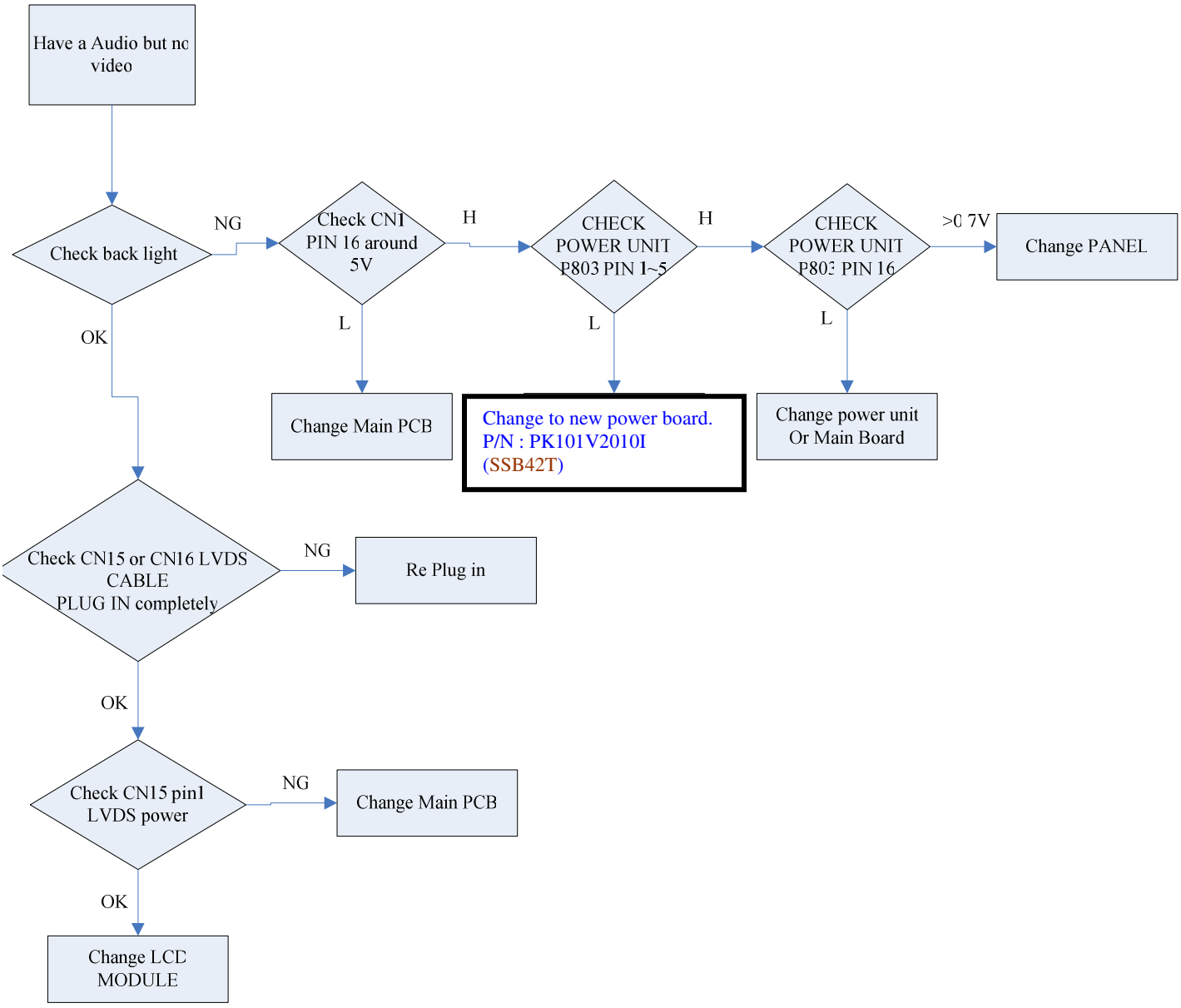
7-2. Troubleshooting guide

The flow chart shown below will help you to troubleshoot your Televison set with it doesn't display normally. Each procedure offers a simple way to check for system errors. Before starting, ensure that there is a signal in and that the Televison is turned on.

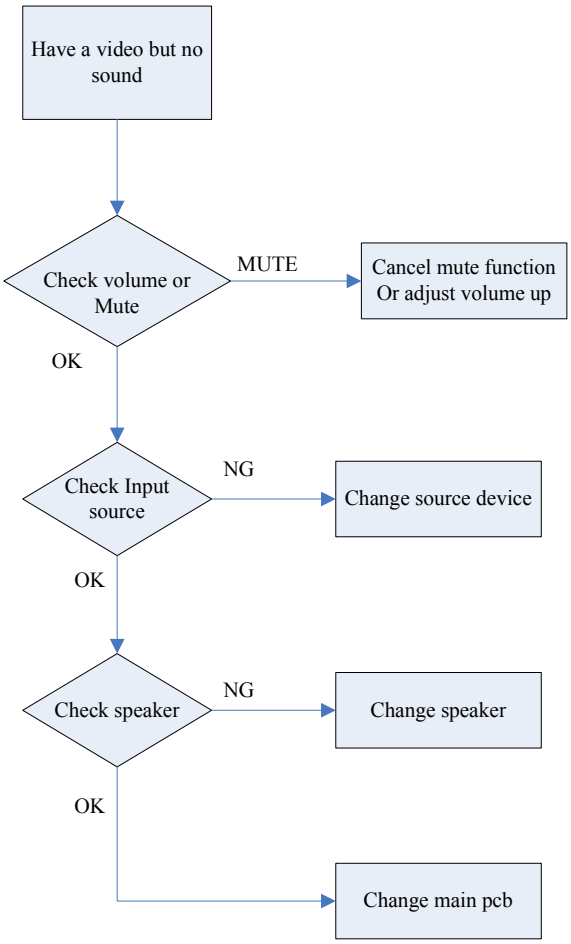
7.2-1 Power LED no light

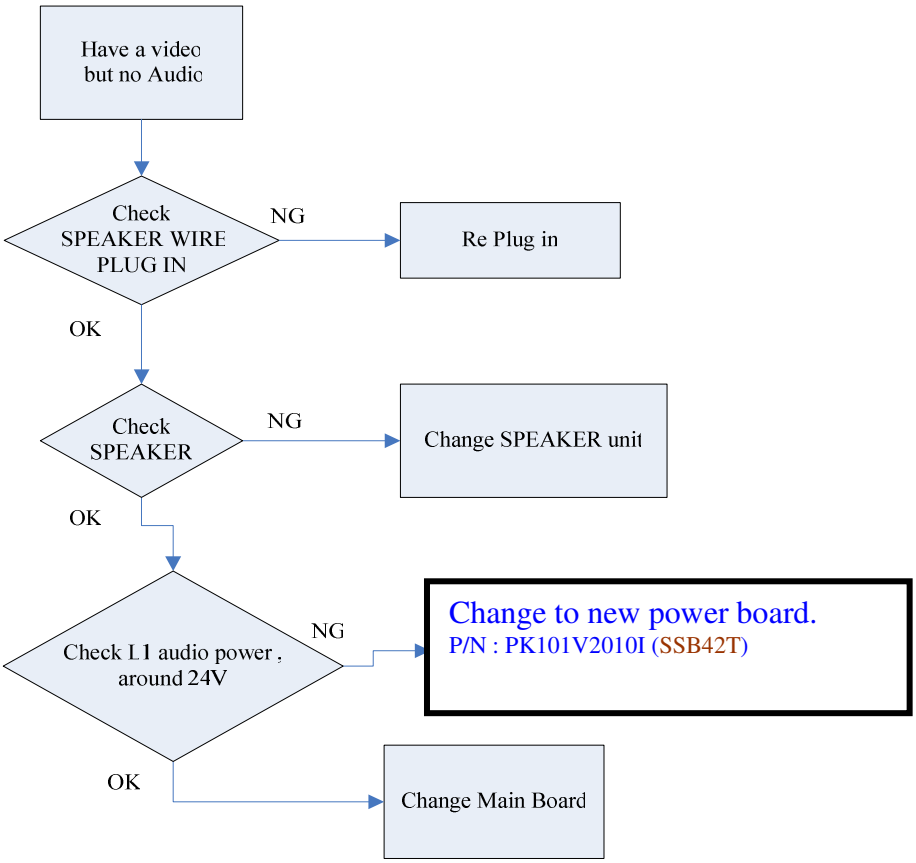


7.2-2 Has audio but no video out



7.2-3 Has video but no audio out




Have a video but no Audio
Check SPEAKER WIRE PLUG IN
NG
Re Plug in
OK
Check SPEAKER
NG
Change SPEAKER unit
OK
Check L1 audio power , around 24V
NG
Change to new power board.
P/N : PK101V2010I (SSB42T)
OK
Change Main Board

8.SCHEMATIC DIAGRAM

ELECTRON-42"

Sheet Index

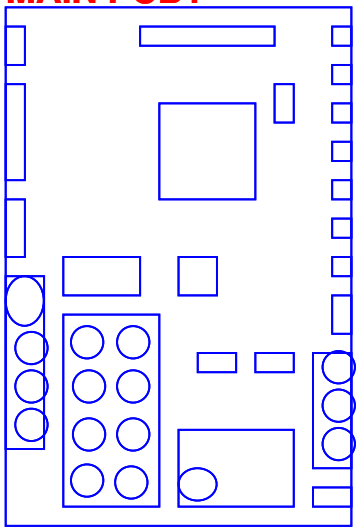
Page 03 - System Power
Page 04 - C7 & MCU / Key
Page 05 - C7 & Tuner Input
Page 06 - C7 & Video Input
Page 07 - C7 & VGA Input
Page 08 - C7 & HDMI Input
Page 09- C7 & Audio Input
Page 10 - C7 & Debug IO / FLASH ROM
Page 11- C7 & Power
Page 12 - C7 & DDRII-800
Page 13 - C7 & LVDS Output
Page 14 - C7 & Audio Out
Page 15 - Audio Amplifier

Notice

1. All Res. is 0603.
2. All Cap. is 0402 (<=0.47uF), 0603 (<=1uF), 0805 (<=10uF).
   0402
   NPO 5pF/50V, 10pF/50V, 22pF/50V, 27pF/50V, 33pF/50V, 36pF/50V, 47pF/50V, 220pF/50V
   X7R 100pF/25V, 470pF/25V, 1000pF/25V, 2200pF/25V, 3300pF/25V, 0.01uF/25V, 0.01uF/50V, 0.022uF/25V
   X5R 1uF/10V
   Y5V 0.1uF/25V, 0.33uF/10V, 0.47uF/10V
   0603
   Y5V 0.1uF/50V, 0.47uF/25V, 1uF/16V
   X5R 10uF/6.3V
   0805
   X5R 4.7uF/16V
   Y5V 0.47uF/50V, 0.68uF/50V, 1uF/50V, 3.3uF/10V, 10uF/10V
   1206
   Y5V 4.7uF/35V
   1210
   Y5V 10uF/35V
3. The mark "#" to indicate that Part disuse.

Renesas Scaler

MAIN PCB1



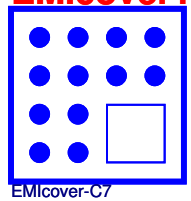
VTV-L40601 REV:0A

FW1

FIRMWARE

FW STC40T REV1.0

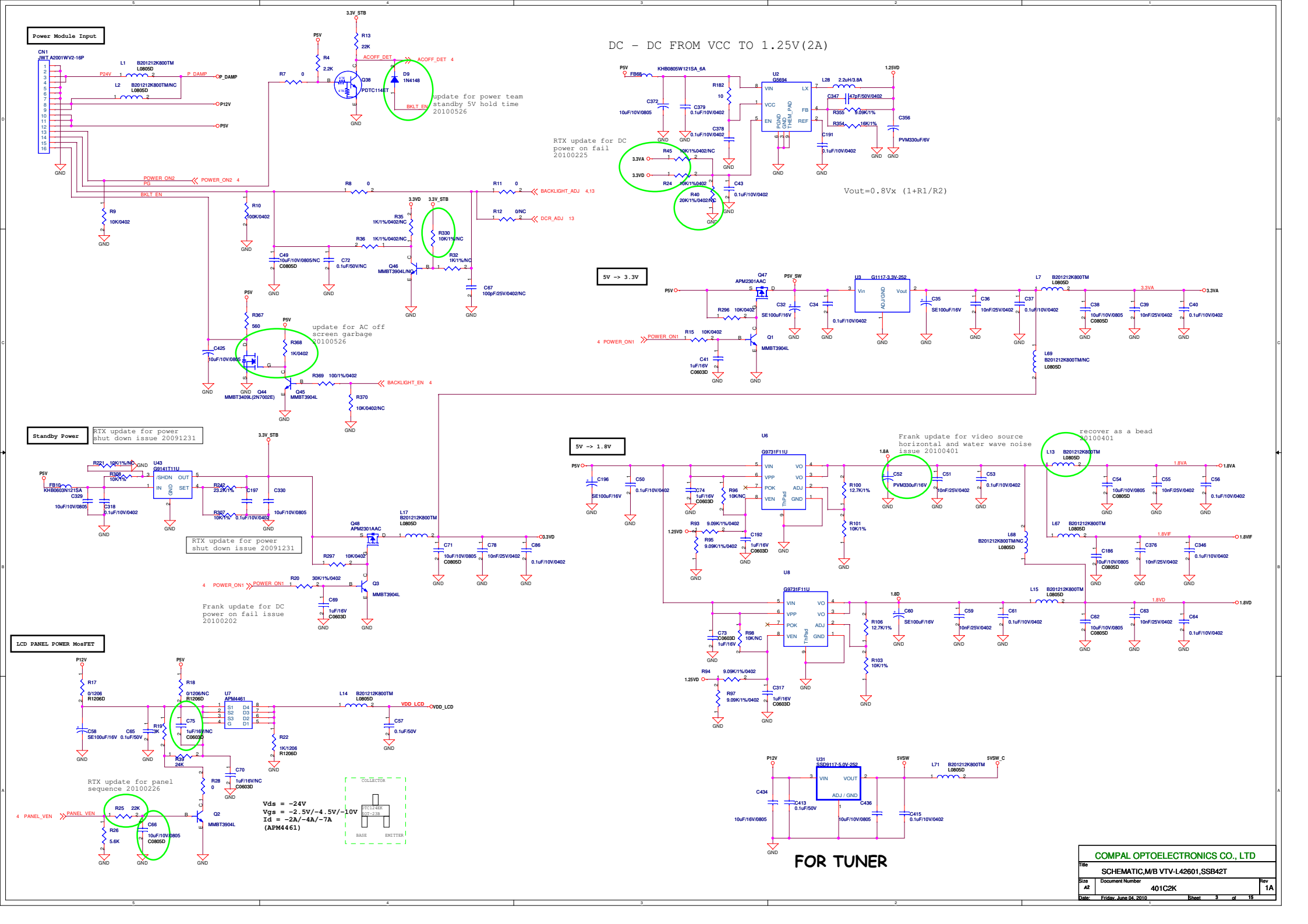
EMIcover1



EMIcover-C7

COMPAL OPTOELECTRONICS CO., LTD

Title	SCHEMATIC,M/B VTV-L42601,SSB42T	
Size A4	Document Number 401C2K	Rev 1A
Date: Friday, June 04, 2010	Sheet 2 of 15	


Power Module Input
DC - DC FROM VCC TO 1.25V(2A)
RTX update for DC power on fail 20100225
Vout=0.8Vx (1+R1/R2)
update for power team standby 5V hold time 20100526
update for AC off screen garbage 20100526
5V -> 3.3V
Standby Power
RTX update for power shut down issue 20091231
RTX update for power shut down issue 20091231
Frank update for DC power on fail issue 20100202
5V -> 1.8V
Frank update for video source horizontal and water wave noise issue 20100401
recover as a bead 20100401
LCD PANEL POWER MosFET
RTX update for panel sequence 20100226
Vds = -24V
Vgs = -2.5V/-4.5V/-10V
Id = -2A/-4A/-7A
(APM4461)
FOR TUNER
COMPAL OPTOELECTRONICS CO., LTD
SCHEMATIC,M/B VTV-L42601,SSB42T
401C2K
Rev 1A
Friday, June 04, 2010
Sheet 3 of 15

C7 MCU

U1A
R8J66977BG
BGA1086-1

RTX update for DC power on fail 20100130

Check

reserve for DCR function 20100106

update for write protect 20091211

RTX update for leakage voltage 20100119

update for LED abnormal during initial 20100112

update for LED abnormal during initial 20100112

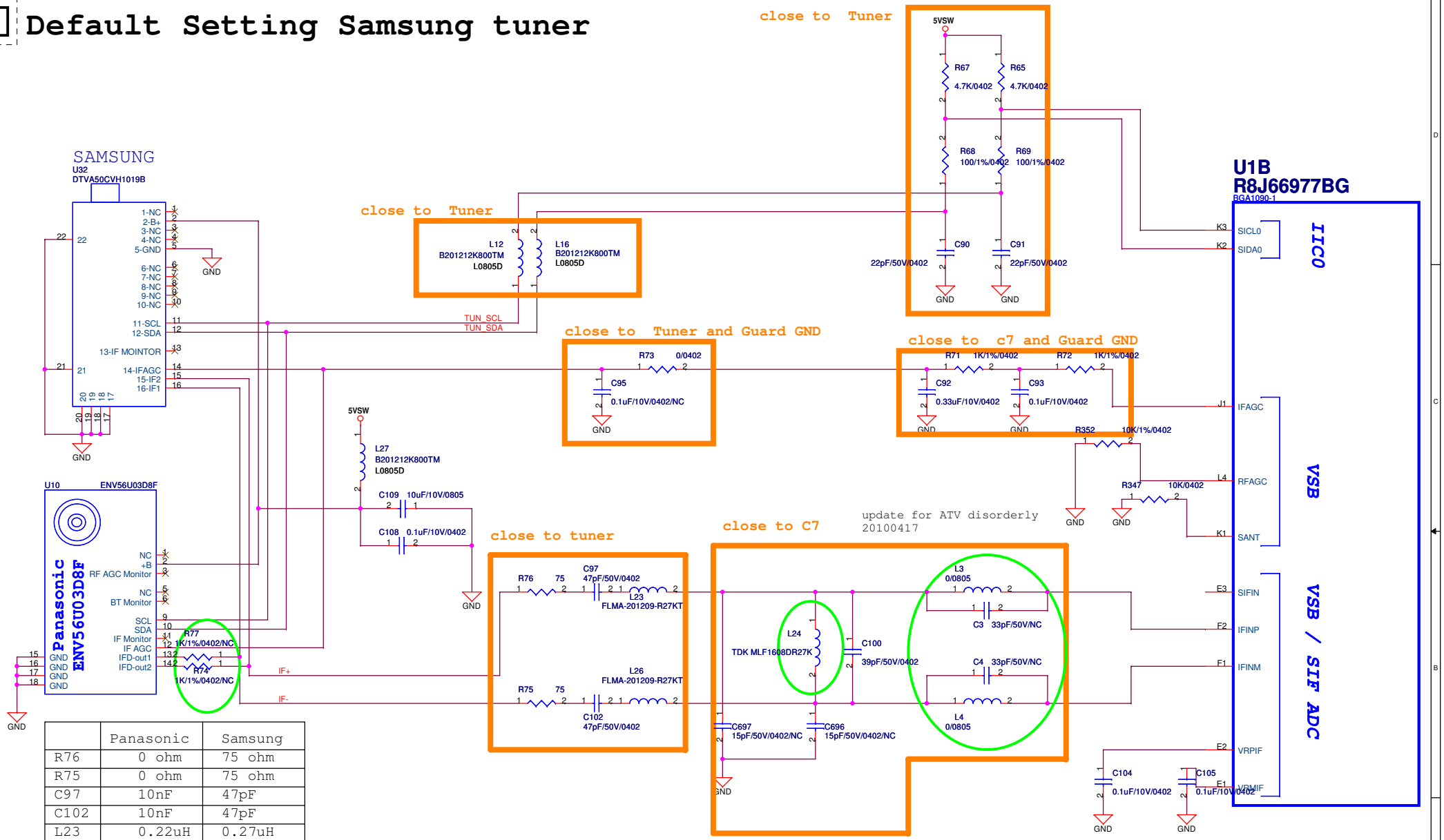
IR & LED Connector
Light sensor Connector

Keypad

W/O LED Effect model--->8 pin connector
W/LED Effect model--->12pin connector

TUNER & C7

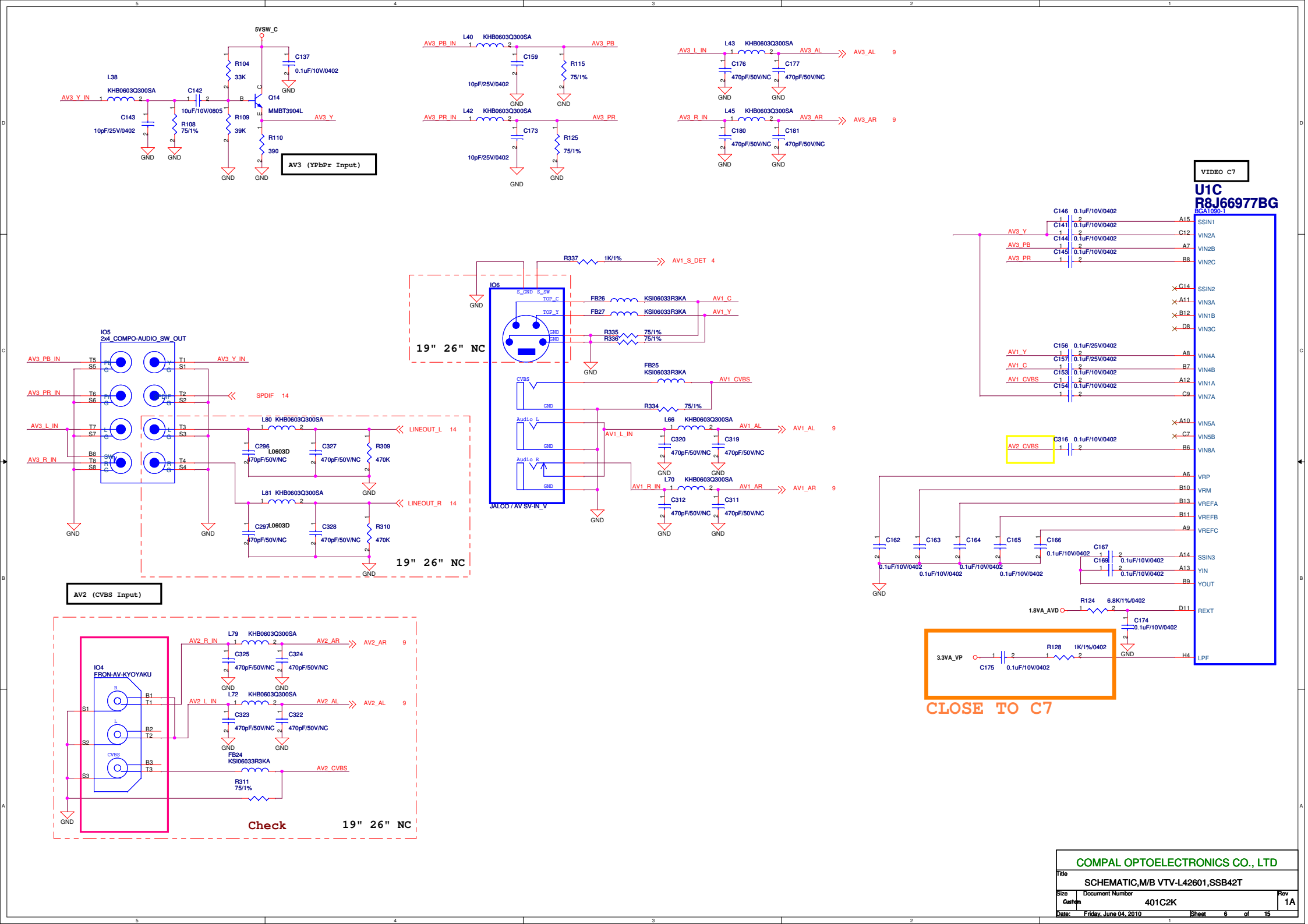
Default Setting Samsung tuner



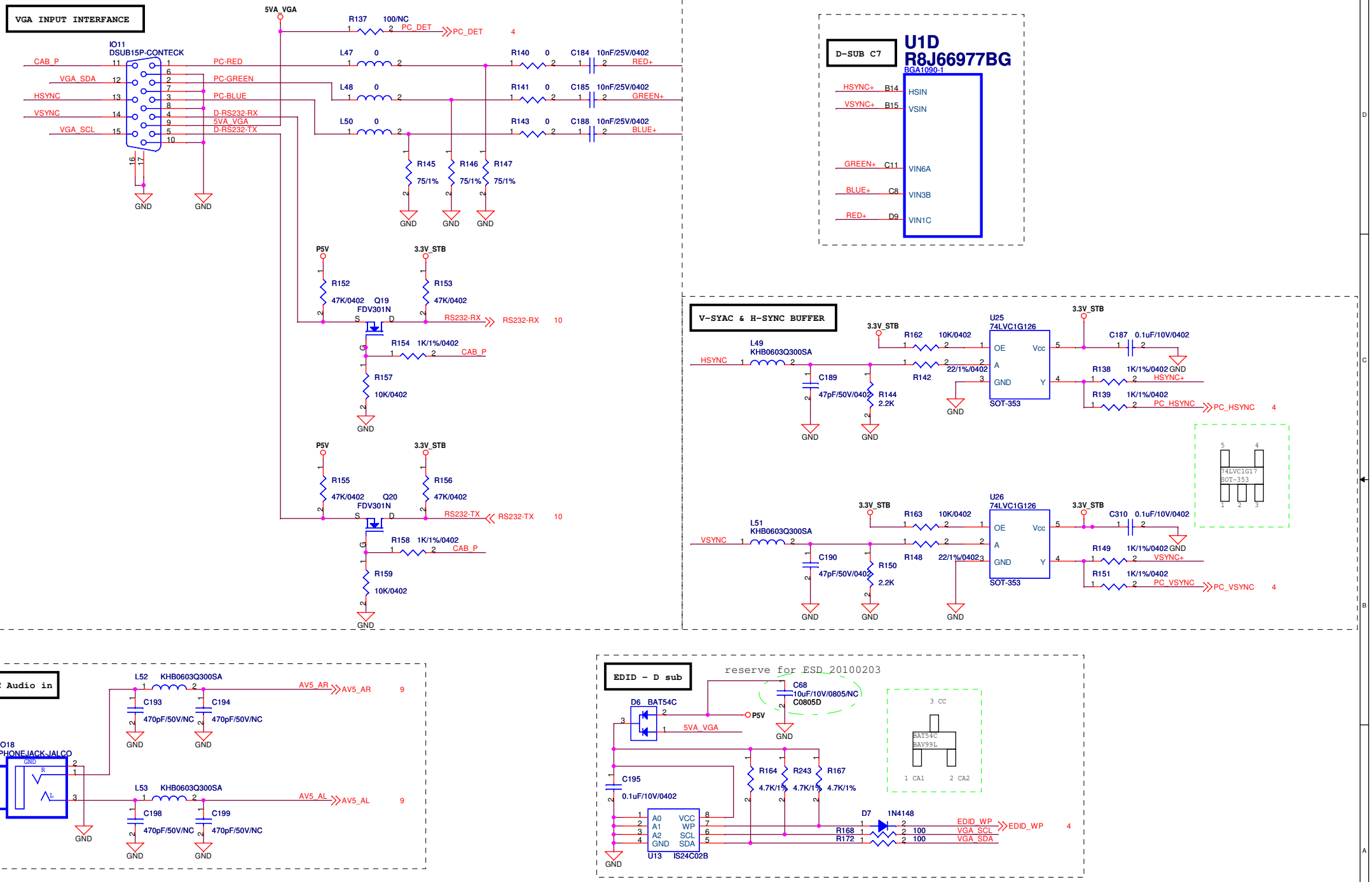
	Panasonic	Samsung
R76	0 ohm	75 ohm
R75	0 ohm	75 ohm
C97	10nF	47pF
C102	10nF	47pF
L23	0.22uH	0.27uH
L26	0.22uH	0.27uH
C697	NC	NC
C696	NC	NC
L24	0.1uH	0.27uH
C100	120pF	39pF
L3,L4	0 ohm	0.27uH-->0ohm
C3,C4	NC	33pF-->NC

PCB Name-Rev : VTV-L40602-0A

Title	SCHEMATIC,M/B VTV-L42601,SSB42T	
Size A3	Document Number 401C2K	Rev 1A
Date: Saturday, June 19, 2010	Sheet 5 of 15	



COMPAL OPTOELECTRONICS CO., LTD	
Title	SCHEMATIC,M/B VTV-L42601,SSB42T
Size: Custom	Document Number: 401C2K
Rev	1A
Date: Friday, June 04, 2010	Sheet 6 of 15

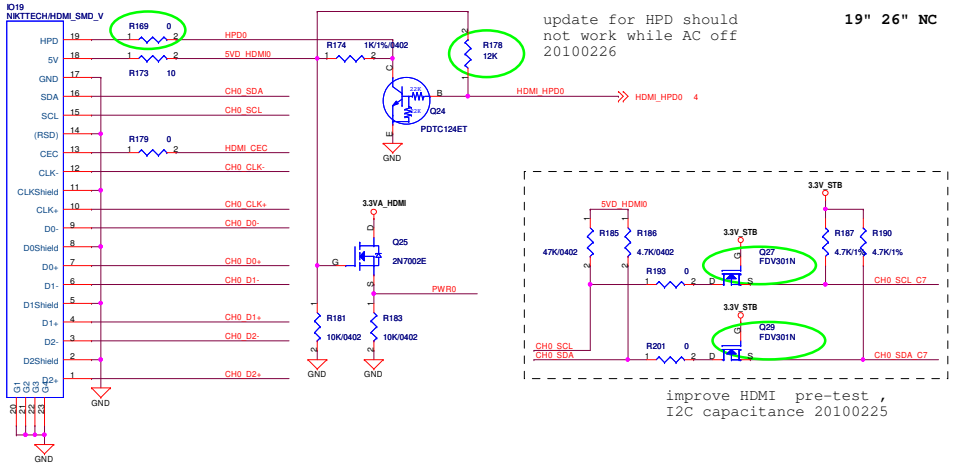

VGA INPUT INTERFANCE
5VA_VGA
R137 100/NC
PC_DET
PC_DET 4
IO11
DSUB15P-CONTECK
CAB_P
VGA_SDA
HSYNC
VSYNC
VGA_SCL
PC-RED
PC-GREEN
PC-BLUE
D-RS232-RX
5VA_VGA
D-RS232-TX
L47 0
L48 0
L50 0
R140 0
R141 0
R143 0
C184 10nF/25V/0402
C185 10nF/25V/0402
C188 10nF/25V/0402
RED+
GREEN+
BLUE+
R145 75/1%
R146 75/1%
R147 75/1%
GND
P5V
3.3V_STB
R152 47K/0402
R153 47K/0402
Q19 FDV301N
RS232-RX
RS232-RX 10
R154 1K/1%/0402
CAB_P
R157 10K/0402
R155 47K/0402
R156 47K/0402
Q20 FDV301N
RS232-TX
RS232-TX 10
R158 1K/1%/0402
R159 10K/0402
D-SUB C7
U1D
R8J66977BG
BGA1090-1
HSYNC+ B14 HSIN
VSYNC+ B15 VSIN
GREEN+ C11 VIN6A
BLUE+ C8 VIN3B
RED+ D9 VIN1C
V-SYAC & H-SYNC BUFFER
L49 KHB0603Q300SA
HSYNC
R162 10K/0402
R142 22/1%/0402
C189 47pF/50V/0402
R144 2.2K
U25 74LVC1G126
OE Vcc A GND Y
SOT-353
C187 0.1uF/10V/0402
R138 1K/1%/0402
HSYNC+
R139 1K/1%/0402
PC_HSYNC
PC_HSYNC 4
L51 KHB0603Q300SA
VSYNC
R163 10K/0402
R148 22/1%/0402
C190 47pF/50V/0402
R150 2.2K
U26 74LVC1G126
C310 0.1uF/10V/0402
R149 1K/1%/0402
VSYNC+
R151 1K/1%/0402
PC_VSYNC
PC_VSYNC 4
74LVC1G17
SOT-353
PC Audio in
IO18
PHONE-JACK-JALCO
L52 KHB0603Q300SA
L53 KHB0603Q300SA
C193 470pF/50V/NC
C194 470pF/50V/NC
C198 470pF/50V/NC
C199 470pF/50V/NC
AV5_AR
AV5_AR 9
AV5_AL
AV5_AL 9
EDID - D sub
reserve for ESD 20100203
C68 10uF/10V/0805/NC
C0805D
D6 BAT54C
P5V
5VA_VGA
C195 0.1uF/10V/0402
R164 4.7K/1%
R243 4.7K/1%
R167 4.7K/1%
A0 A1 A2 GND VCC WP SCL SDA
U13 IS24C02B
D7 1N4148
R168 100
R172 100
EDID_WP
VGA_SCL
VGA_SDA
EDID_WP 4
BAT54C
BAV99L
1 CA1
2 CA2
3 CC
COMPAL OPTOELECTRONICS CO., LTD
Title
SCHEMATIC,M/B VTV-L42601,SSB42T
Size A3
Document Number 401C2K
Rev 1A
Date: Friday, June 04, 2010
Sheet 7 of 15

HDMI INPUT

improve HDMI pre-test , HPD impedance

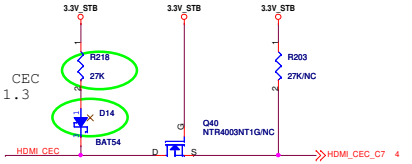
update for HPD should not work while AC off 20100226

19" 26" NC



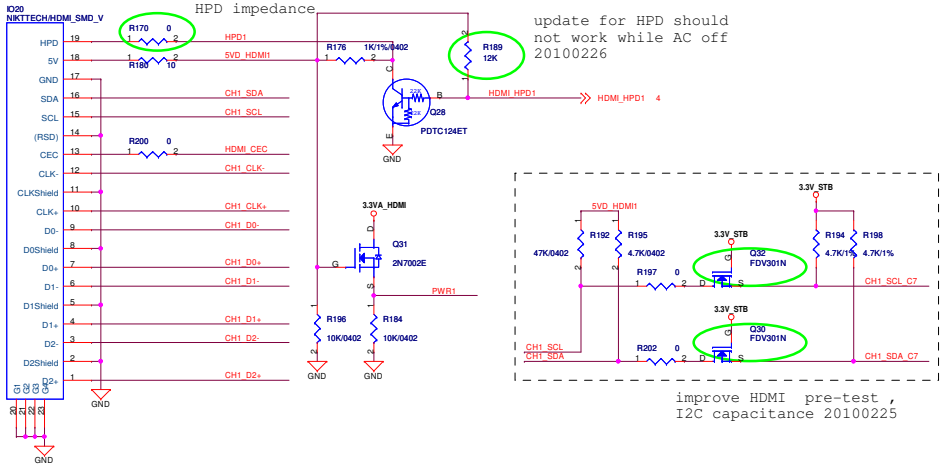
improve HDMI pre-test , I2C capacitance 20100225

improve HDMI pre-test , CEC line-capacitance ; CTS 1.3



improve HDMI pre-test , HPD impedance

update for HPD should not work while AC off 20100226

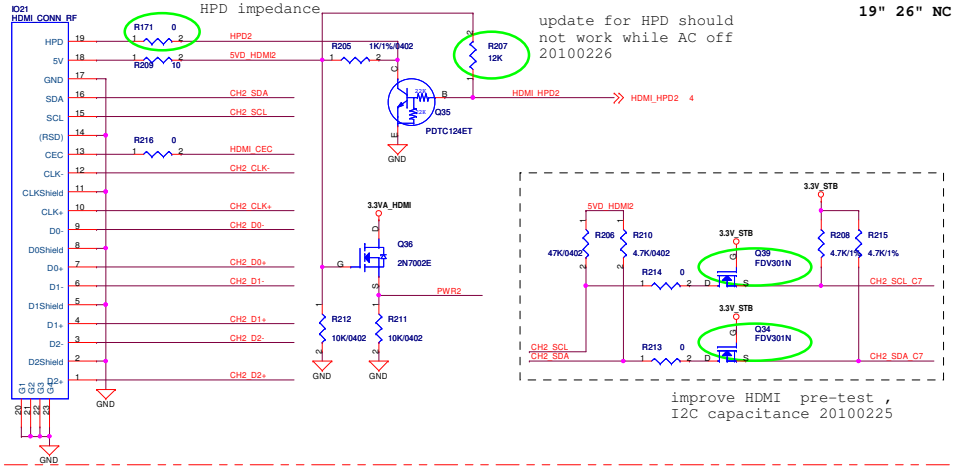


improve HDMI pre-test , I2C capacitance 20100225

improve HDMI pre-test , HPD impedance

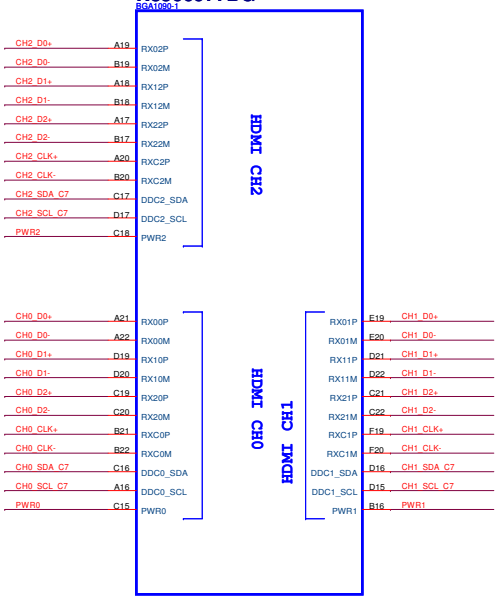
update for HPD should not work while AC off 20100226

19" 26" NC

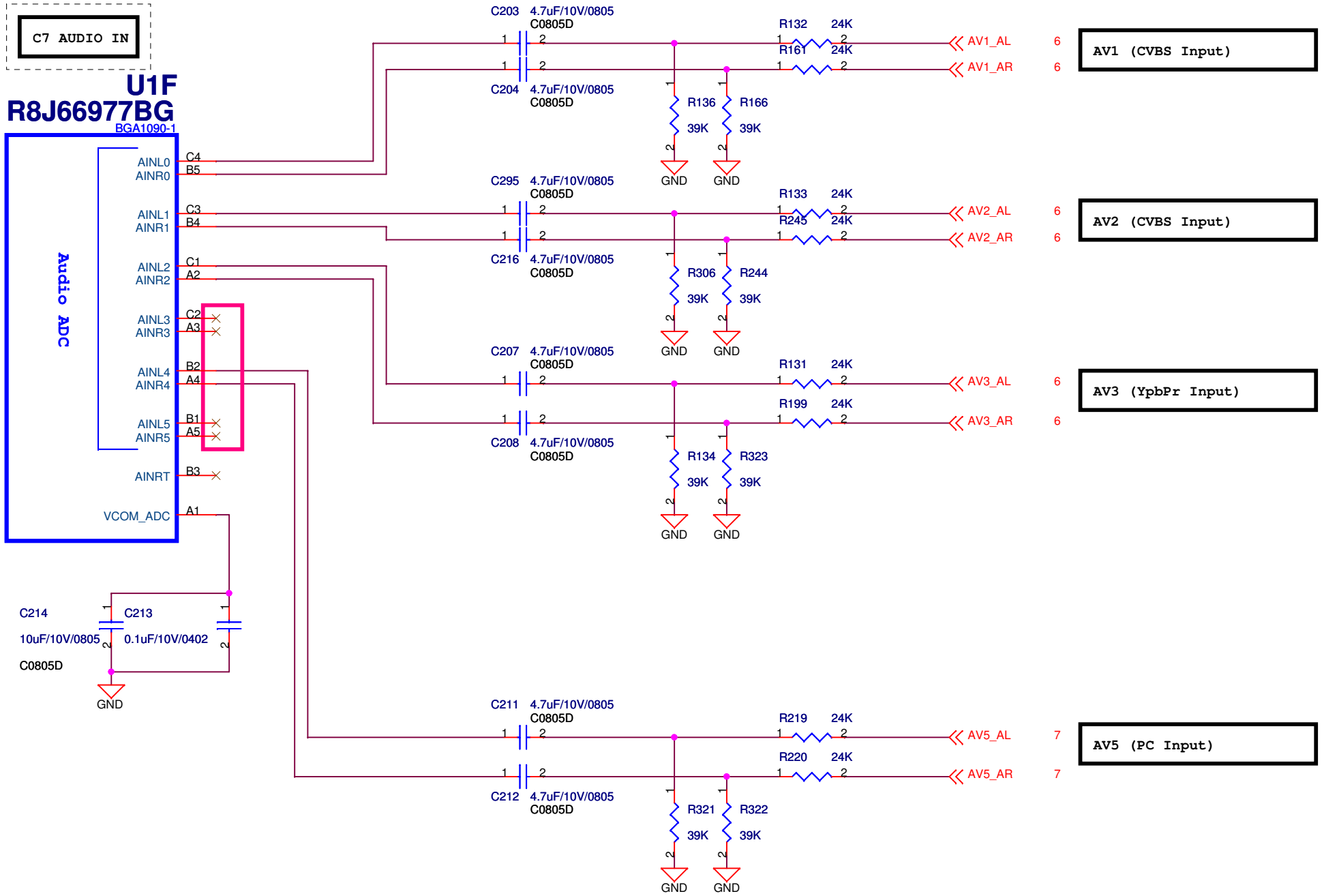


improve HDMI pre-test , I2C capacitance 20100225

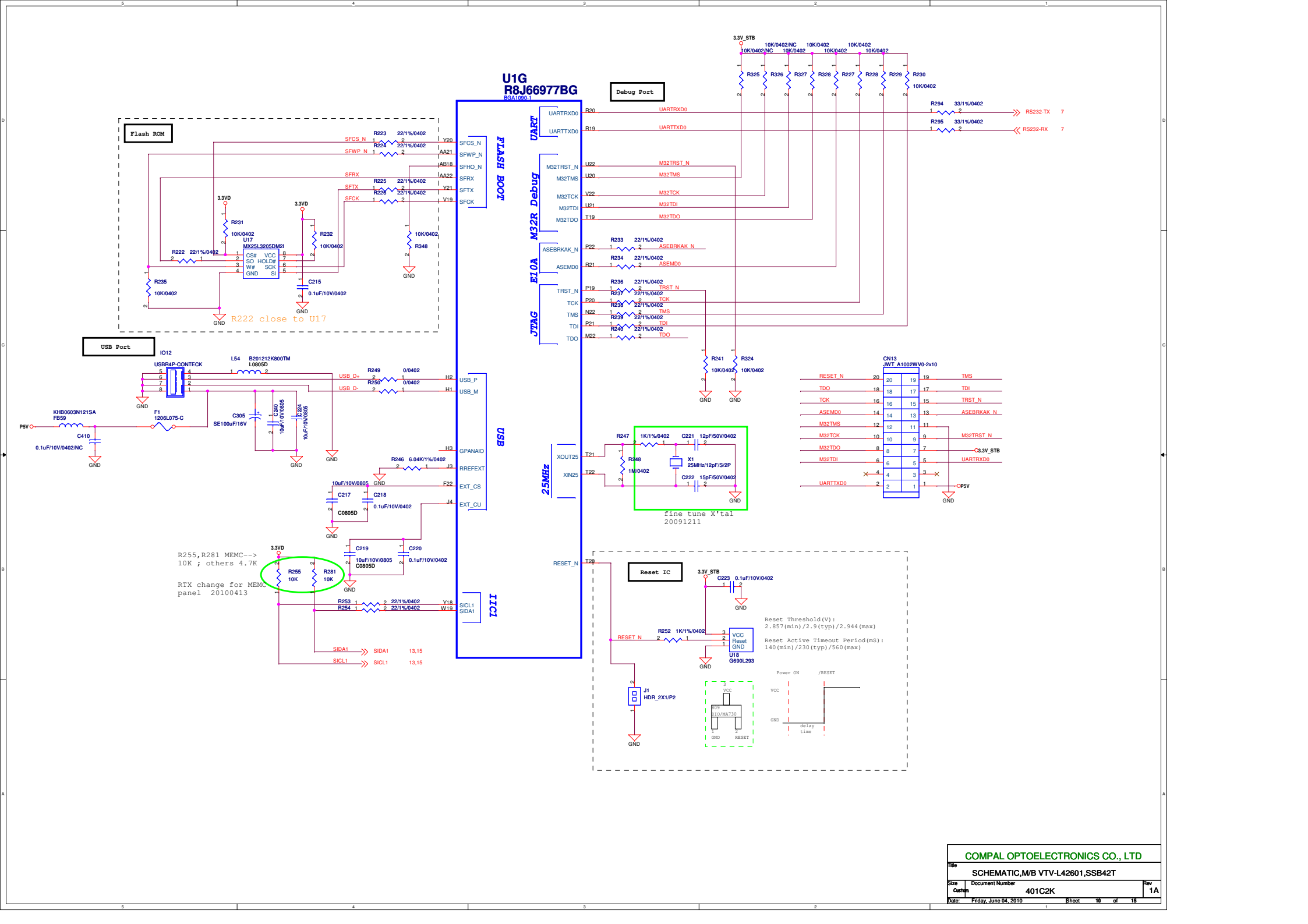
C7 HDMI

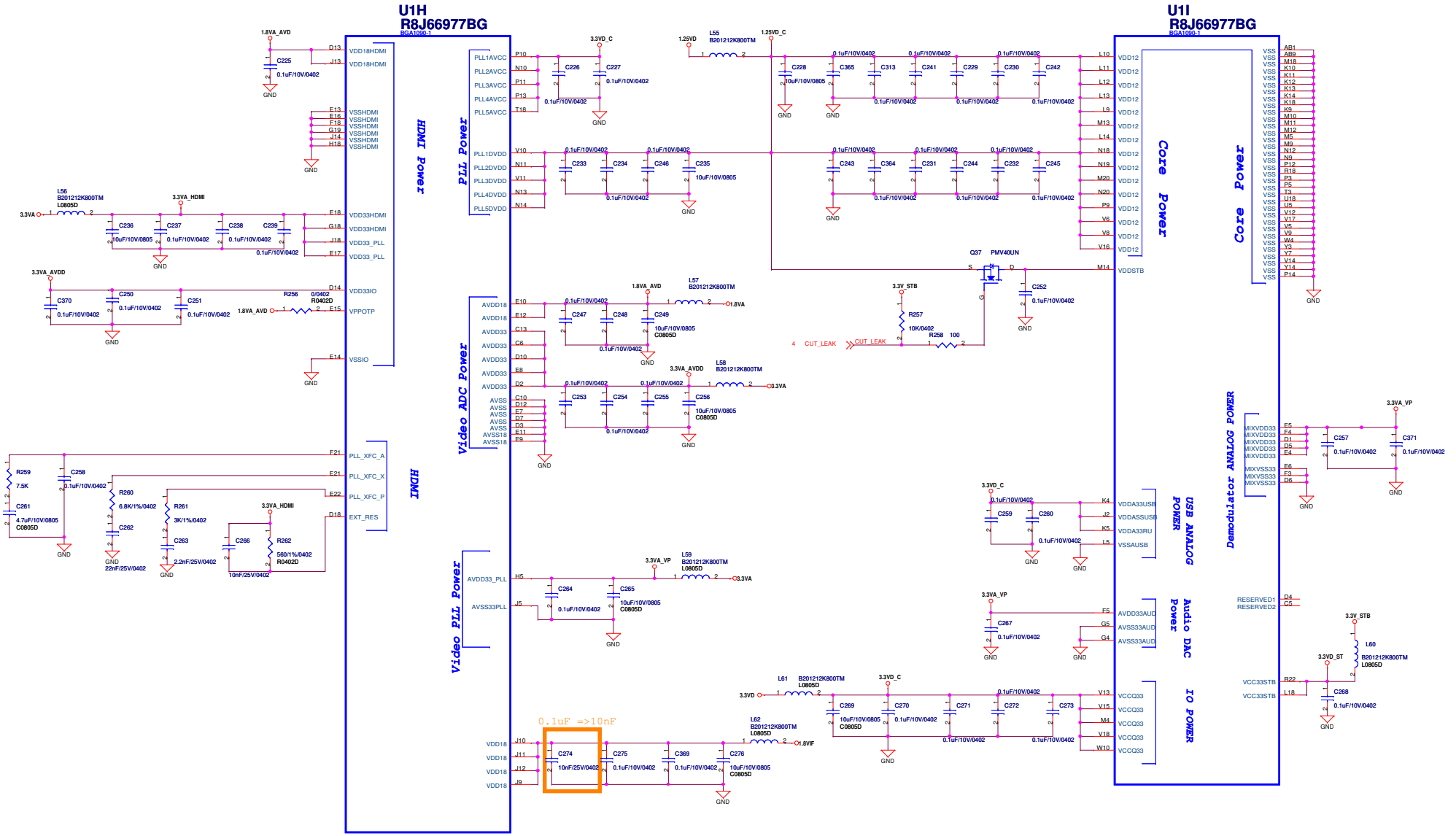


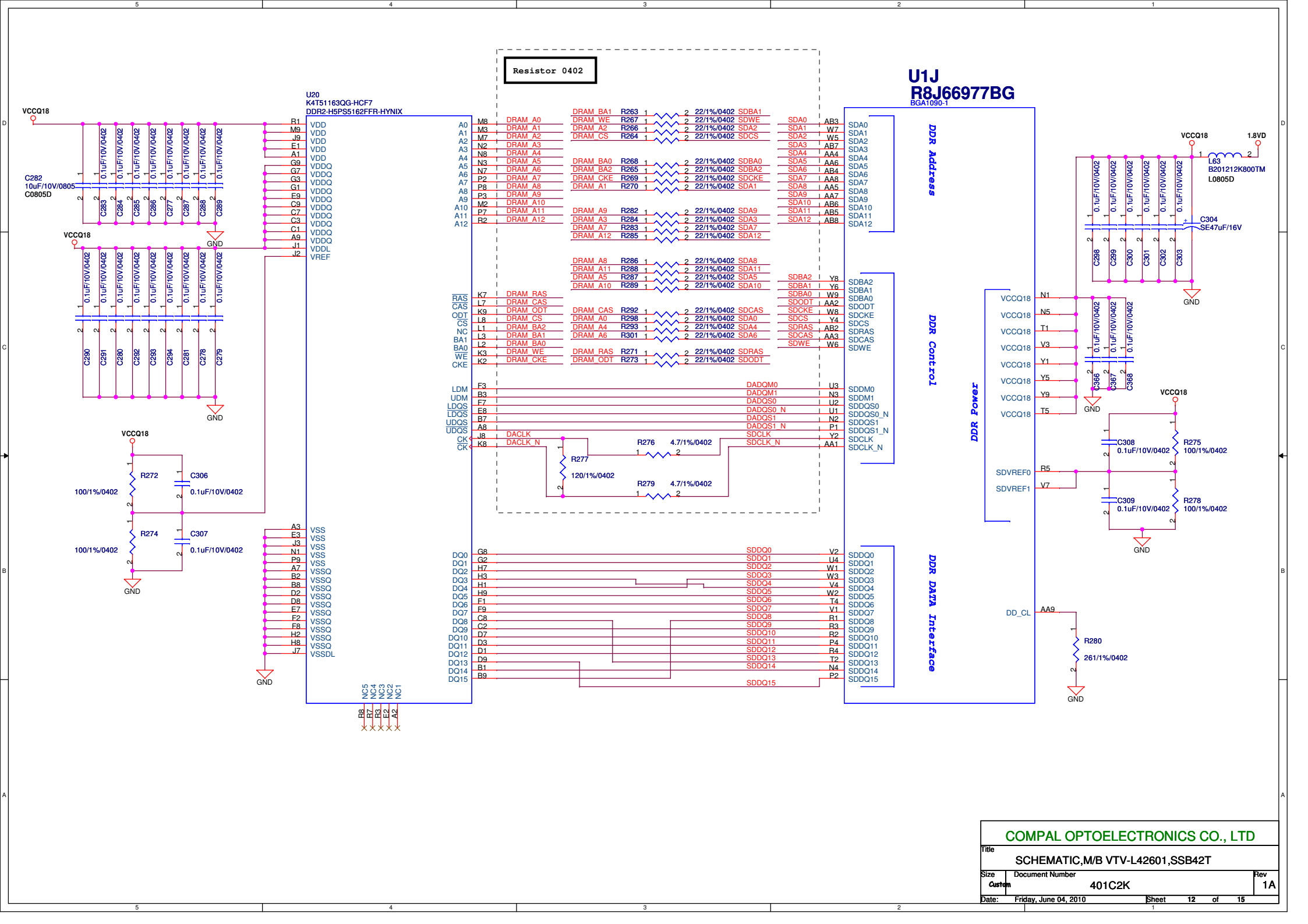
COMPAL OPTOELECTRONICS CO., LTD		
Title: SCHEMATIC,M/B VTV-L42601,SSB42T		
Size: A2	Document Number: 401C2K	Rev: 1A
Date: Friday, June 04, 2010	Sheet 8 of 15	



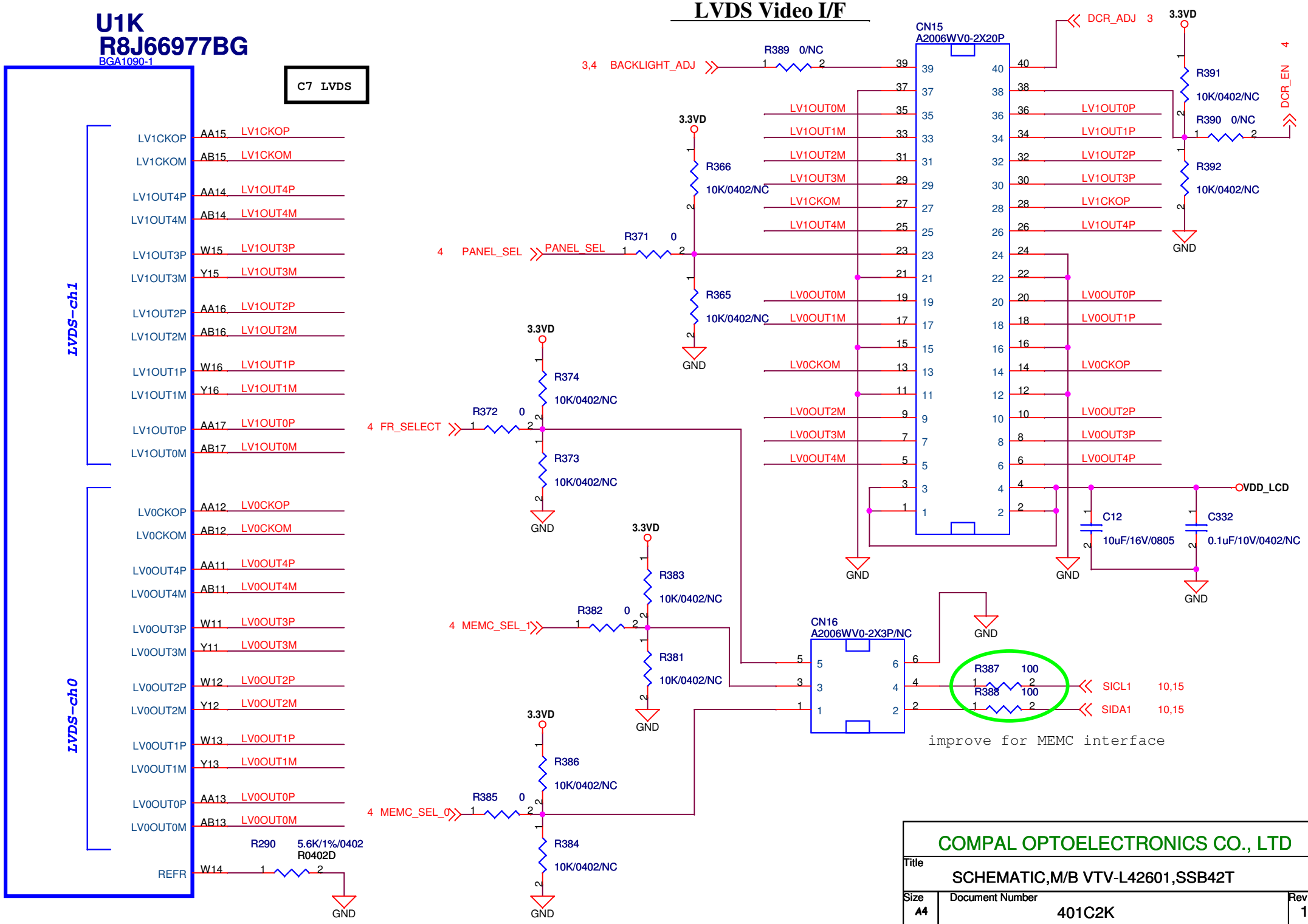
COMPAL OPTOELECTRONICS CO., LTD			
Title: SCHEMATIC,M/B VTV-L42601,SSB42T			
Size: A4	Document Number: 401C2K		Rev: 1A
Date: Friday, June 04, 2010		Sheet 9 of 15	


U1G
R8J66977BG
BGA1090-1
Debug Port
Flash ROM
USB Port
Reset IC
FLASH BOOT
UART
M32R Debug
E10A
JTAG
USB
25MHz
IICI
R222 close to U17
fine tune X'tal
20091211
R255,R281 MEMC--> 10K ; others 4.7K
RTX change for MEMC panel 20100413
Reset Threshold(V): 2.857(min)/2.9(typ)/2.944(max)
Reset Active Timeout Period(mS): 140(min)/230(typ)/560(max)
COMPAL OPTOELECTRONICS CO., LTD
SCHEMATIC,M/B VTV-L42601,SSB42T
401C2K
Rev 1A
Friday, June 04, 2010
Sheet 10 of 15


U1H
R8J66977BG
BGA1090-1
U1I
R8J66977BG
BGA1090-1
HDMI Power
PLL Power
Video ADC Power
Video PLL Power
HDMI
Core Power
Core Power
USB ANALOG POWER
Audio DAC Power
IO POWER
Demodulator ANALOG POWER
0.1uF =>10nF
COMPAL OPTOELECTRONICS CO., LTD
SCHEMATIC,M/B VTV-L42601,SSB42T
401C2K
1A
Friday, June 04, 2010
11
15

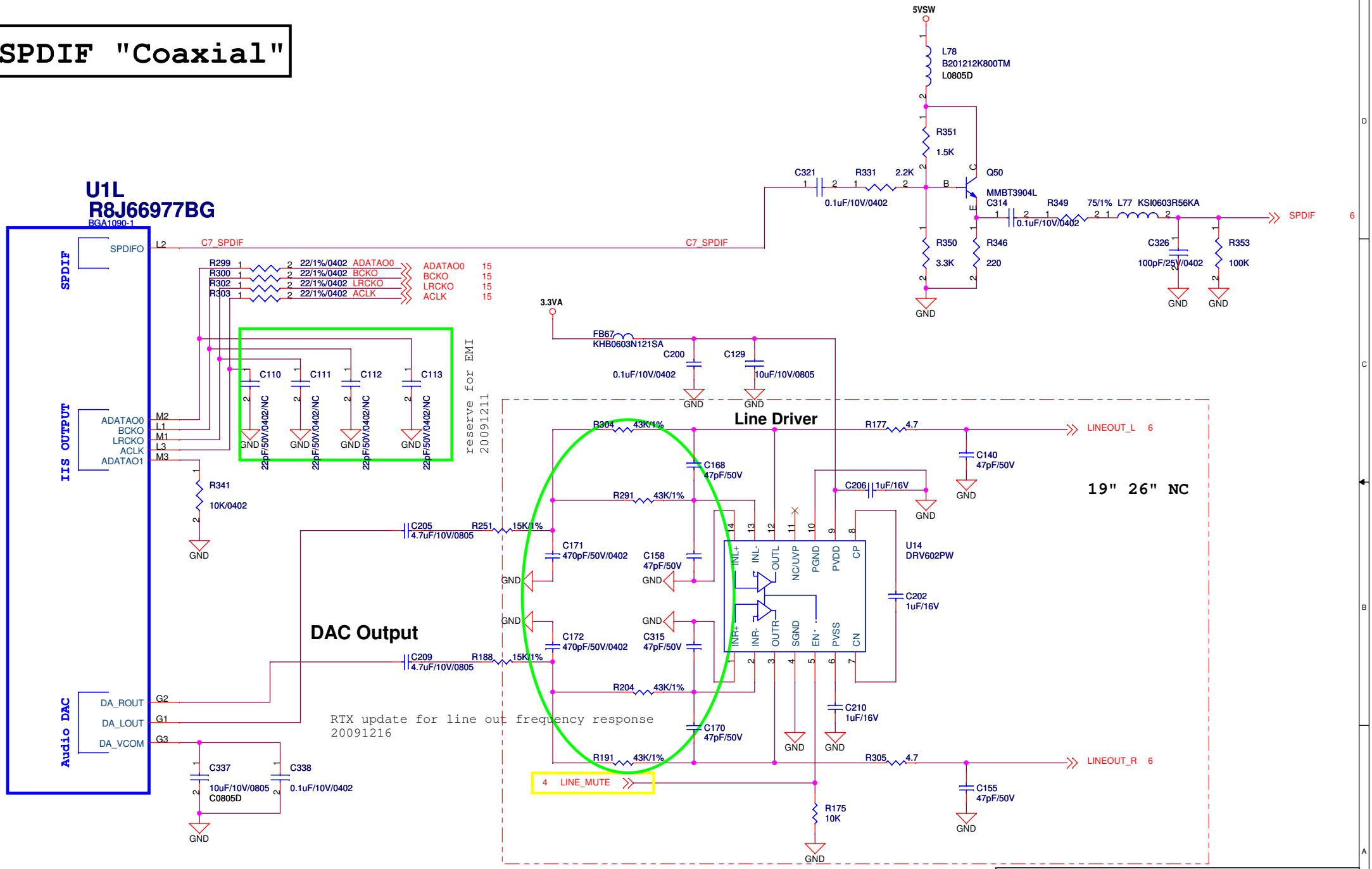

Resistor 0402
U20
K4T51163QG-HCF7
DDR2-H5PS5162FFR-HYNIX
U1J
R8J66977BG
BGA1090-1
DDR Address
DDR Control
DDR Power
DDR DATA Interface
VCCQ18
GND
1.8VD
L63
B201212K800TM
L0805D
C282
10uF/10V/0805
C0805D
C304
SE47uF/16V
R272
100/1%/0402
C306
0.1uF/10V/0402
R274
100/1%/0402
C307
0.1uF/10V/0402
R275
100/1%/0402
C308
0.1uF/10V/0402
R278
100/1%/0402
C309
0.1uF/10V/0402
R276
4.7/1%/0402
R277
120/1%/0402
R279
4.7/1%/0402
R280
261/1%/0402
SDVREF0
SDVREF1
DD_CL
COMPAL OPTOELECTRONICS CO., LTD
SCHEMATIC,M/B VTV-L42601,SSB42T
Size: Custom
Document Number: 401C2K
Rev: 1A
Date: Friday, June 04, 2010
Sheet 12 of 15

LVDS Video I/F

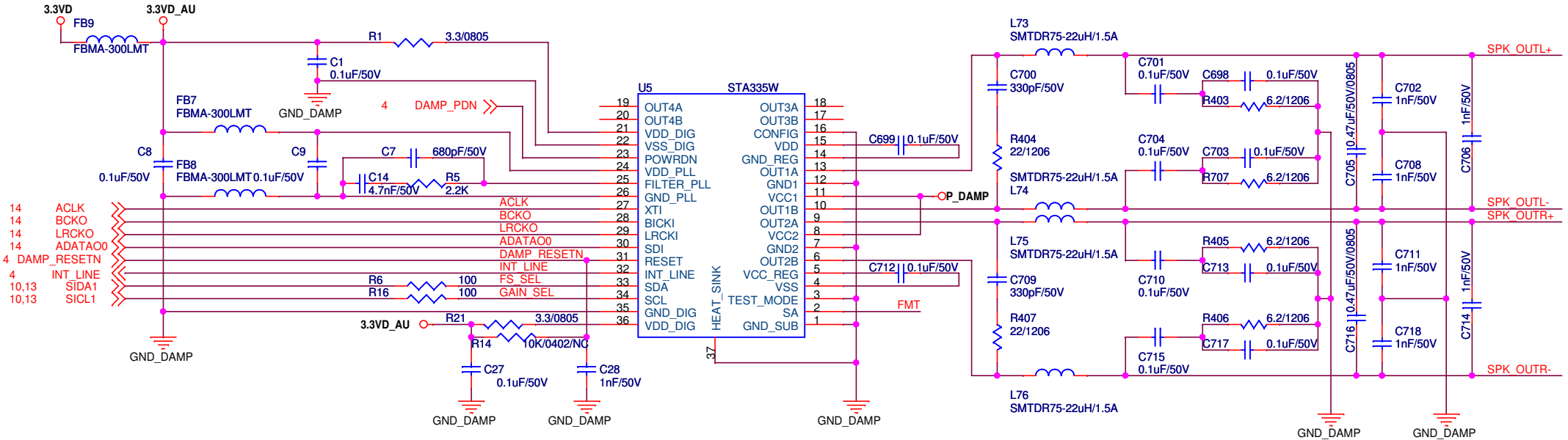


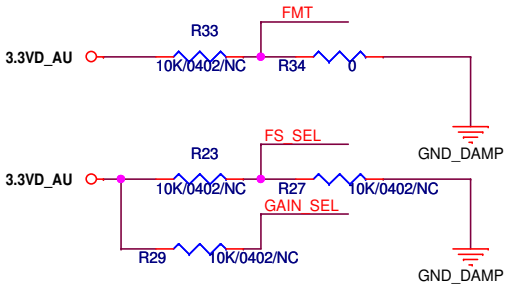
COMPAL OPTOELECTRONICS CO., LTD		
Title: SCHEMATIC,M/B VTV-L42601,SSB42T		
Size: A4	Document Number: 401C2K	Rev: 1A
Date: Friday, June 04, 2010	Sheet 13 of 15	

SPDIF "Coaxial"



COMPAL OPTOELECTRONICS CO., LTD	
Title	SCHEMATIC,M/B VTV-L42601,SSB42T
Size: Custom	Document Number: 401C2K
Rev	1A
Date: Friday, June 04, 2010	Sheet 14 of 15

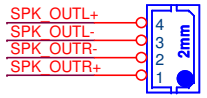


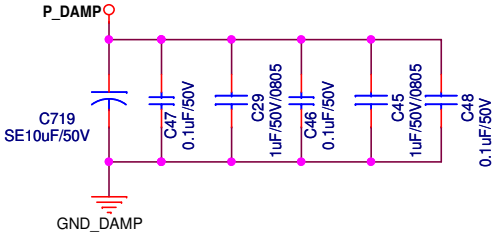


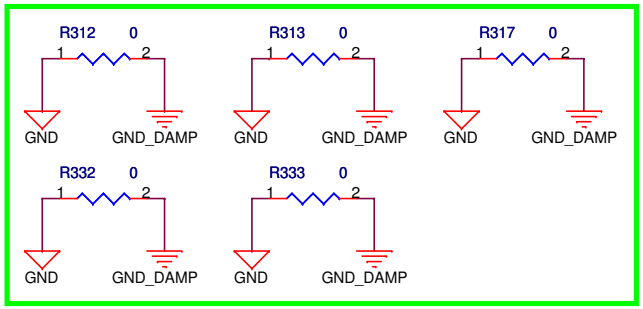
reserve for EMI
20100519

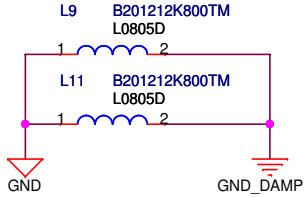
	SPEAKER 6 ohm	SPEAKER 8 ohm	SPEAKER 16 ohm
L73,L74 L75,L76	15 uH	22 uH	47 uH
R403,R707 R405,R406	4.7 ohm	6.2 ohm	12 ohm
C705,C716	0.68 uF	0.47 uF	0.22 uF

SPKER OUT









COMPAL OPTOELECTRONICS CO., LTD

Title: SCHEMATIC,M/B VTV-L42601,SSB42T

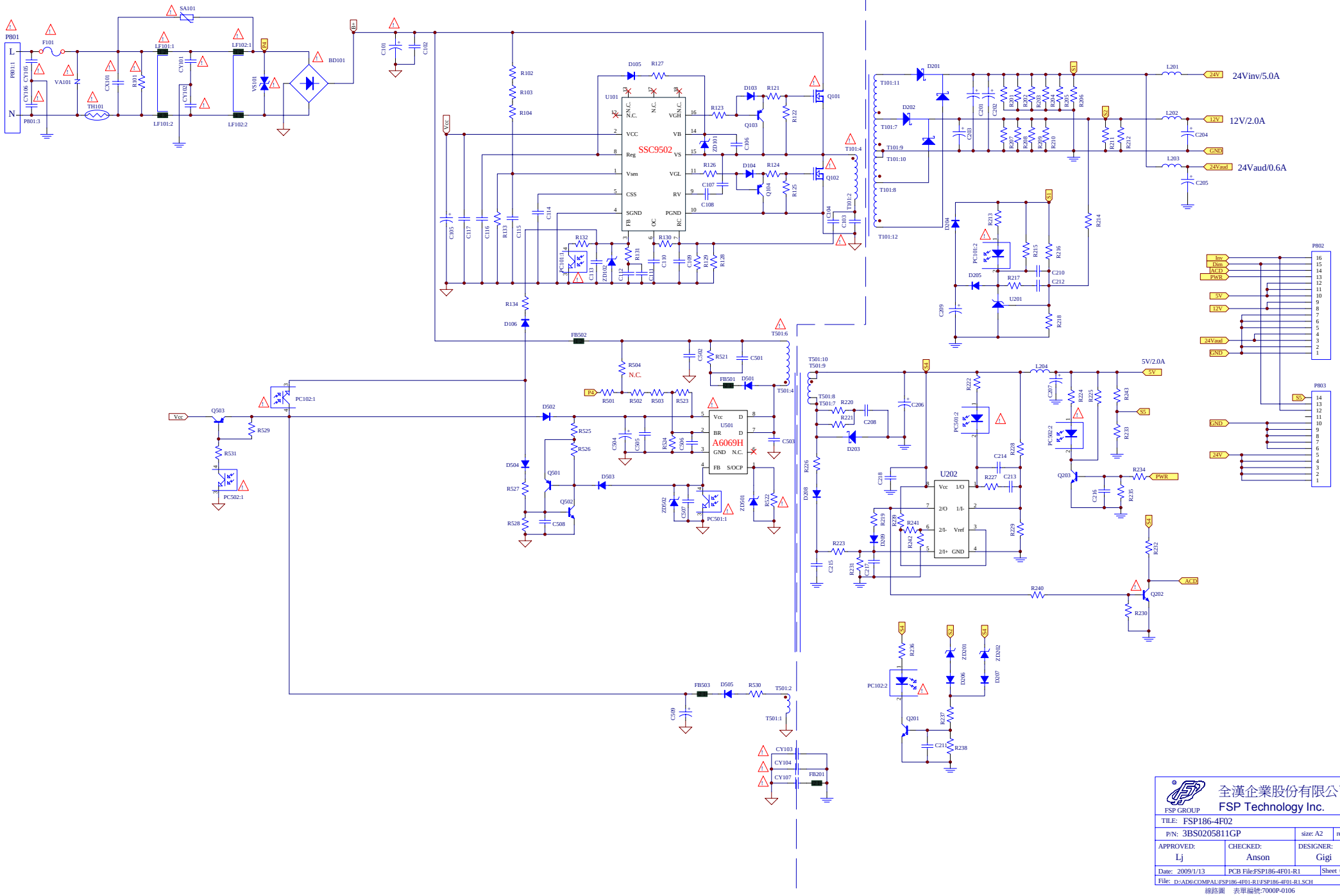
Size	Document Number	Rev
Custom	401C2K	1A

Date: Friday, June 04, 2010 Sheet 15 of 15

SCHEMATIC DIAGRAM
POWER
42”(P42410-00)

42" POWER-(P42410-00)

PRIMARY | SECONDARY



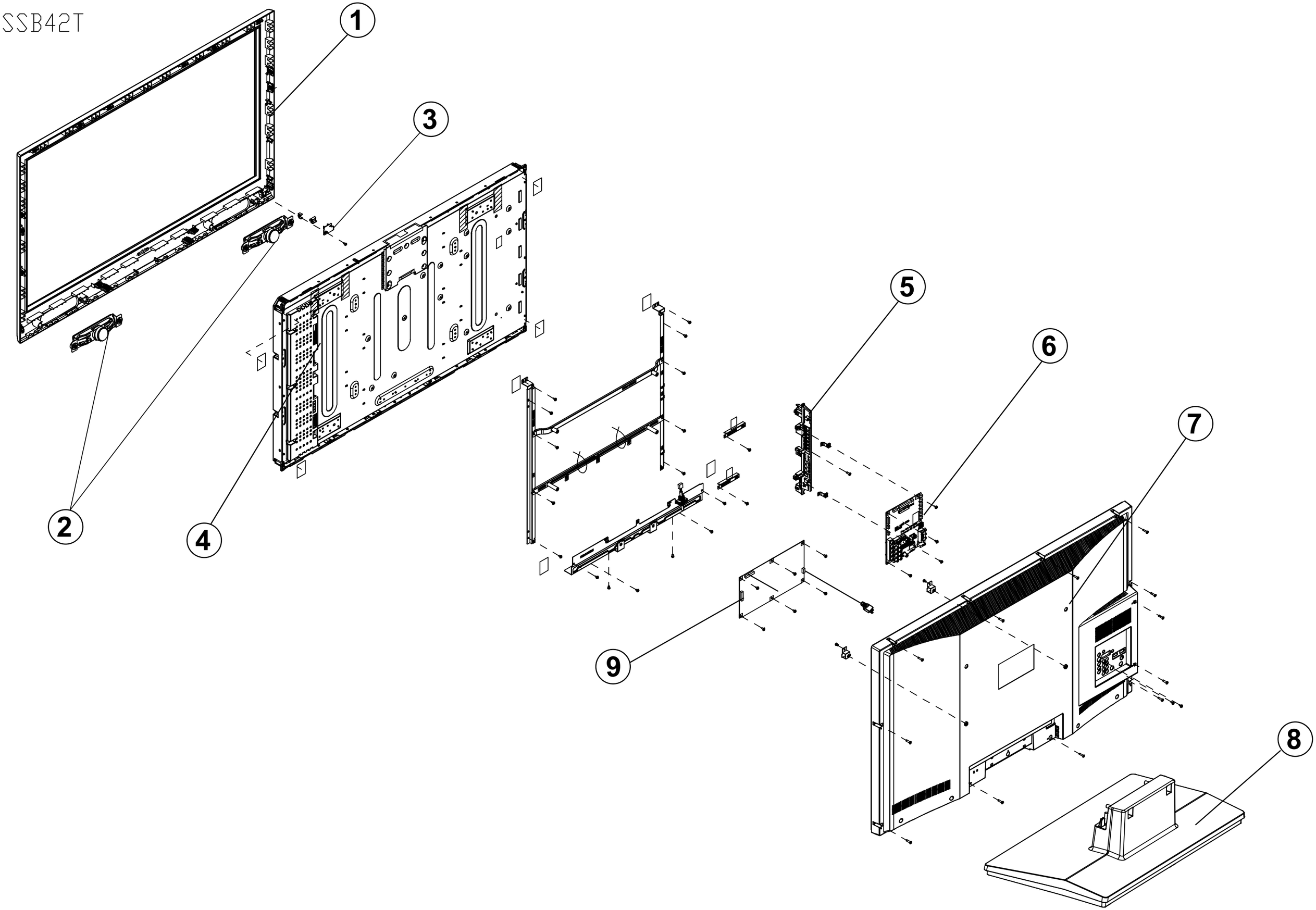
FSP GROUP	全漢企業股份有限公司 FSP Technology Inc.		
TILE: FSP186-4F02			
P/N: 3BS0205811GP		size: A2	rev:1
APPROVED: Lj	CHECKED: Anson	DESIGNER: Gigi	
Date: 2009/1/13	PCB File:FSP186-4F01-R1	Sheet 0 of 0	
File: D:\AD6\COMPAL\FSP186-4F01-R1\FSP186-4F01-R1.SCH			
線路圖 表單編號:7000P-0106			

APPENDIX-A: Main assembly

LCD-DP42410 Version:00

REF. No.	DESCRIPTION	PARTS No.						REMARK
		CHASSIS No. : P42410-00 SSB42TTZA1I(SET)		CHASSIS No. : P42410-01 SSB42TTZA2I (SKD)		CHASSIS No. : P42410-02 SSB42TTZA3I (SKD-old bezel)		
1	FRONT CABINET	CLAPSB420001I	1	CLAPSB420002I	1	CLAPSB420001I	1	
2	SPK SET(SSA19I)	CLCG101005C0I	2	←	2	←	2	
3	IR PCB ASS'Y	CL454C2369L01	1	←	1	←	1	
4	LCD MODULE	CLAC6VT4201R2	1					
5	KEY PLATE PCB ASS'Y	CLFBSB261700I	1	←	1	←	1	
6	MAIN PCB ASS'Y	CL461C2K69L43	1	←	1	←	1	
7	BACK COVER ASSY	CLAPSA420B10I	1	←	1	←	1	
8	BASE ASSY GLOSSY	CLAPSA420510I	1	←	1			
9	POWER PCB ASS'Y	CLPK101V2010I	1	←	1	←	1	
10	REMOTE CTRL	CLPK11V01180I	1	←	1	←	1	
11	USER'S MANUAL	CLHDA69B4220I	1	←	1	←	1	
12	EPS FORM(RIHGT)			CLFJSB420B00I	1	←	1	
13	EPS FORM(LEFT)			CLFJSB420C00I	1	←	1	
14	EPS FORM(TOP LEFT)	CLFJSA420700I	1					
15	EPS FORM(TOP RIGHT)	CLFJSA420800I	1					
16	EPS FORM(BOTTTOM LEFT)	CLFJSA420900I	1					
17	EPS FORM(BOTTOM RIGHT)	CLFJSA420A00I	1					
18	EPE BAG for unit	CLHK3B420010I	1					
19	CARTON	CLHB4SB42081I	1					
20	ZIPPERED BAG for accessaries	CLHK3OL77801I	1	←	1	←	1	
21	PE BAG-STAND	CLHK3B420020I	1	←	1	←	1	
22	PWR CORD(S) (BLK)	CLGA05001020I	1	←	1	←	1	

SSB42T



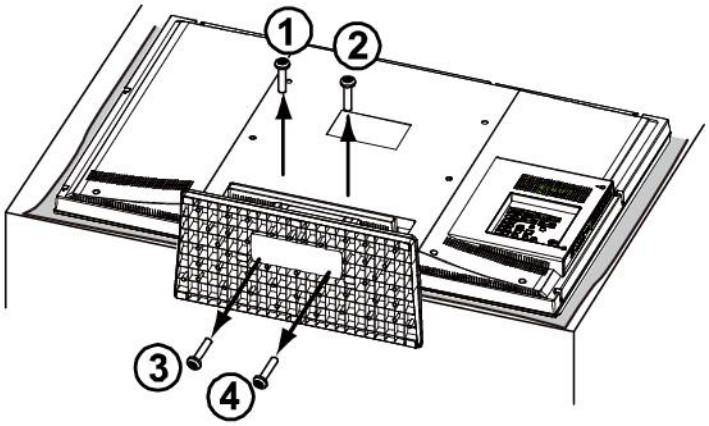
Removing or Installing the Stand

Cautions:

1. **Carefully handle the unit during setup and consult authorized service personnel to ensure successful installation.**
2. **Before performing work spread cushioning over the base area to lay the Display on. This will prevent it from being damaged.**
3. **Disconnect the AC power cord firstly.**

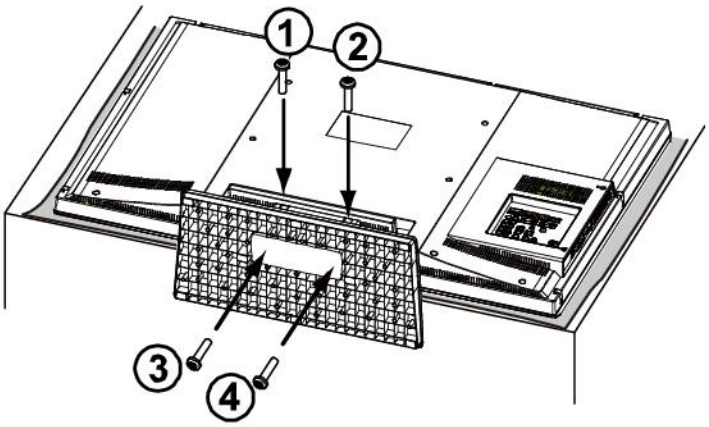
To remove the stand: (if will mounting)

1. Place the LCD TV screen facing down on a flat surface place where maintained with soft materials (such as a blanket) for protecting the display screen.
2. Release screw in 4 holes with screw driver.



To install the stand

1. Place the LCD TV screen facing down on a flat surface place where maintained with soft materials (such as a blanket) for protecting the display screen.
2. Secure the stand to the TV with 4 screw.



Note

- **Do not remove the stand from the TV unless using an optional bracket to mount it.**
- **The appearance of the unit may differ from the actual one.**

CANADA SERVICE MANUAL CHANGE LIST

DATE	Page	VERSION	CHANGE ITEM